



Linux User

Core Linux reviewed  
All the latest Linux news

The best-selling RISC OS magazine in the world

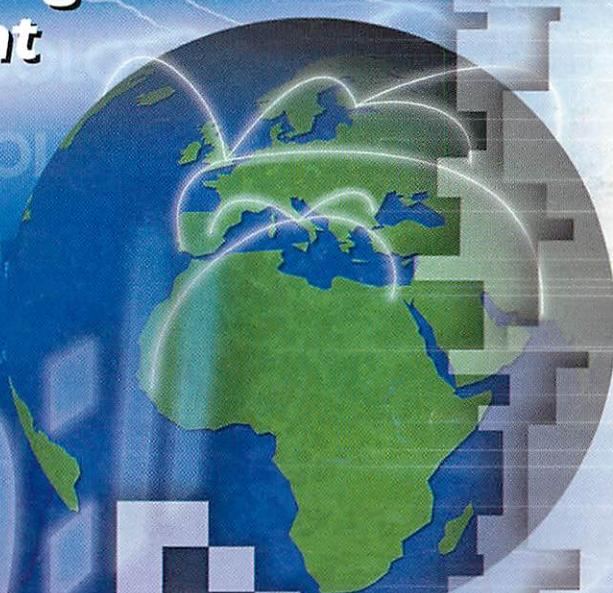
# ACORNUSER

## Site Writer

*Creating the web pages  
that you really want*

Plus

- **What's on at Wakefield**
- **RISC OS all at sea**
- **The Web Wizard**
- **New games**



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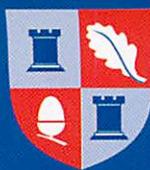
ISSUE 221 JUNE 2000



06 >



£4.20



**CASTLE**  
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Business and Home

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Acorn  
HARDWARE &  
PERIPHERALS

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Risc PC23T Web Wizard	£1149	£1350.07

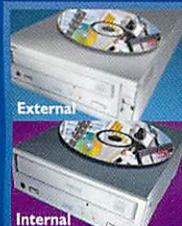
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A7000/A7000+ extended warranty - 2 year	£109	£128.07
A7000/A7000+ extended warranty - 4 year	£189	£222.07
Risc PC (600/700) extended warranty - 1 year	£89	£104.57
Risc PC (600/700) extended warranty - 2 year	£159	£186.82
Risc PC (600/700) extended warranty - 4 year	£279	£327.82
StrongARM Risc PC extended warranty - 1 year	£99	£116.32
StrongARM Risc PC extended warranty - 2 year	£179	£210.32
StrongARM Risc PC extended warranty - 4 year	£319	£374.82

### EXTERNAL SCSI CASES

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Case for single SCSI device	£40	£47.00
Combo case for 2 SCSI devices	£60	£70.50

FOR ALL YOUR  
Acorn  
HARDWARE &  
PERIPHERALS

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2nd slice for Risc PC inc 4 way b'plane	£76	£89.30
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A7000+/ backplane (not if CD already installed)	£34	£39.95
Fixing kits for hard drives	£8	£9.40
Monitor cable for all Acorn (selection)	£10	£11.75
Podule case for A3000	£16	£18.80
Risc PC 2 slot backplane	£29	£34.07
SCSI I & II cables choice from	£10	£11.75
SCSI terminator/adaptors (selection)	£10	£11.75
SCSI/IDE ribbon cables from	£5	£5.87

### FLOPPY DISC DRIVES

Floppy drive A3010 or A3020	£29	£34.07
Floppy drive A4/5000 A7000 RiscPC	£29	£34.07
Floppy drive for A3000	£29	£34.07
Replacement floppy drive for A4	£20	£23.50

### HARD DRIVES

IDE 210MB 3.5in for A4000 & A5000	£40	£47.00
IDE 500MB 3.5in for A4000 & A5000	£45	£52.87
IDE 1.2GB 3.5in for RiscPC & A7000/+	£49	£57.57
IDE 2GB 3.5in for RiscPC & A7000/+	£59	£69.32
IDE 4GB 3.5in for RiscPC & A7000/+	£70	£82.25
SCSI 100MB 3.5in	£39	£45.82
SCSI 2GB 3.5in	£90	£105.75
SCSI 4GB 3.5in	£129	£151.57
SCSI 500MB 3.5in	£49	£57.57
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### HARD DRIVES inc Interface

170MB IDE A300/A400 interface included	£100	£117.50
170MB IDE A3000 interface included	£85	£99.87
170MB IDE A3010 interface included	£85	£99.87
170MB IDE A3020 fitting kit included	£49	£57.57
500MB IDE A300/A400 interface included	£130	£152.75
500MB IDE A3000 interface included	£115	£135.12
500MB IDE A3010 Interface included	£115	£135.12
500MB IDE A3020 fitting kit included	£79	£92.82

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### IDE INTERFACES

A3/400 IDE interface for 2.5in & 3.5in hard drives	£60	£70.50
A3000 IDE interface kit - 2.5in hard drive	£52	£61.10
A3010 IDE Interface Kit - 2.5in Hard Drive	£52	£61.10
A3020 fixing kit - 2.5in hard drive	£8	£9.40

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AURA Acorn keyboard for A7000 and Risc PC	£29	£34.07
Ergo keyboard	£39	£45.82
Ergo keyboard for pre Risc PC	£69	£81.07
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### MEMORY

A300 & A400 I-4MB	£35	£41.12
A3000 I-4MB	£55	£64.62
A3000 4-8MB	£124	£145.70
A3000 serial port upgrade	£23	£27.02
A3010 I-2MB	£25	£29.37
A3010 I-4MB	£55	£64.62
A3020 & A4000 2-4MB	£35	£41.12
A400 4-8MB -	£99	£116.32
A5000 2-4MB	£45	£52.87
A5000 4-8MB	£119	£139.82

### MEMORY RISC PC A7000

4MB SIMM for Risc PC and A7000	£7	£8.22
8MB SIMM for RISC PC and A7000	£10	£11.75
16MB SIMM - Risc PC A7000/+	£39	£45.82
32MB SIMM - Risc PC A7000/+	£59	£69.32
64MB SIMM - Risc PC A7000/+	£85	£99.87
128MB SIMM - Risc PC A7000/+	£14	£175.07
Risc PC 2MB VRAM	£60	£70.50

### MICE

Mouse balls heavy (pack of 10)	£15	£17.62
Mouse for A7000/+ N/C	£10	£11.75
Mouse for all Acorn (not A7000 etc)	£12	£14.10
Original mouse for all Acorn (not A7K)	£16	£18.80

### SPECIAL OFFER! ISDN MODEM + FREE INTERNET CONNECTION\*

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1SDN line needed

PLUS FREE Argonet ISP trial

£116.32

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£149 £175.07

£269 £316.07

£649 £762.57

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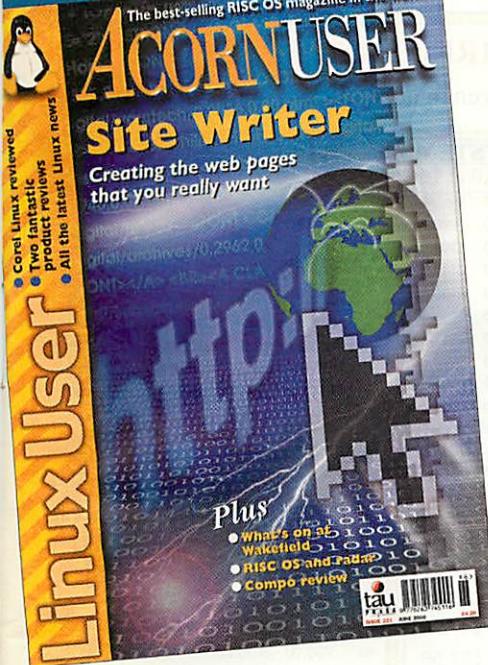
£94 £110.45

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June 2000

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## Linux User

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It comes as no real surprise that the presence of a PC advert in *Acorn User* has met with criticism from some quarters – I'm not talking about the dealers who are justifiably concerned that their margins could be hurt (but don't forget that with RISC OS dealers you are also paying RISC OS experience, know-how and support). But there are those who have been offended by the mere presence of such an advert, as if there is some unpleasant taint.

I find this odd.

I've always worked on the assumption that all RISC OS users are interested in furthering the RISC OS cause. I'm sure that we all really would like to see this market expanding – aren't we all working for that ideal world where RISC OS is judged on at least an equal footing as Windows, MacOS and Linux?

In an editorial many years ago I talked of a situation where Acorn themselves became successful and behaved the way that people object to Microsoft behaving – it's not realistic to assume it would be otherwise.

And if that ideal world came to be, what size of magazine would *Acorn User* be? And how many other RISC OS magazines would there be on the newsstands?

And how bloated with box-shifter adverts would those magazines be?

So perhaps we at *Acorn User* are just giving you a taste of the future. I don't think it's too bad a price to pay for success, do you?

Steve Turnbull  
Editor

**July issue on sale  
8th June 2000**

0% Interest FREE credit (6 months)

or LOW cost finance / leasing on all new systems

inc. peripherals, software & 2/3 yr optional warranties (min. deposit 10%)

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RISC OS compatible products for the new Millennium

## neTWORK

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**£399** + Vat (£468.83)



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L.C. Finance £17.24 / month

L.C. Finance £15.32 / month

(monitors extra e.g. i.e. 15" system £499 + VAT) Finance £19.16 / month ring for more details  
50 mip Arm7500 system with 8Mb memory, built in ZIP drive support, Midi support, 3D sound, & sampler support, 10baseT port as standard, RISCOS 4 as standard, High speed serial, High speed parallel, expandable to 256Mb memory & hard drive / CD-ROM etc.

## RiscStation Lite R7500

RiscStation Lite base from

**£499** + Vat (£586.33)



## RiscStation Lite R7500+

RiscStation Lite+ base from

**£579** + Vat (£680.33)

L.C. Finance £22.23 / month

Over £500 worth of FREE SOFTWARE

50 mip Arm7500 system with minimum 16Mb memory, 4Gb hard drive, 48x CD-ROM, built in ZIP drive support, Midi support, 3D sound, & sampler support, 80w speakers, 10baseT port as standard, RISCOS 4 as standard, High speed serial, High speed parallel, expandable to 256Mb memory.

R7500 with 16MB memory & 4Gb Hard Drive

R7500 base only £499 + Vat (£586.33) (£19.16)

15" monitor system £599 + Vat (£703.83) (£22.99)

17" monitor system £649 + Vat (£762.58) (£24.91)

19" monitor system £749 + Vat (£880.08) (£28.75)

Also available the LitePlus with 64MB / 8G HD

LitePlus Base only £579 + Vat (£680.33) (£22.23)

15" monitor system £679 + Vat (£797.83) (£26.06)

17" monitor system £729 + Vat (£856.58) (£27.98)

19" monitor system £829 + Vat (£974.08) (£31.82)

## Internet Packs

available for all machines include Internet software, ISP setup and 56K modem from £85 + VAT (£99.88)

## Acorn SA 233 T RiscPC

from £860 inc VAT

or £28.10 / month via L.C.F. & we will match or beat your best offer

We can supply any combination or configuration you require.

## Acorn SA Web Wizard

**£1099 + VAT (inc. RiscOS 4)**

34Mb / 8G / DvdCD as CD Rom / Ant Internet & Jarva with a 56K modem (monitor extra).

On L.C.F. for only £42.19 / month

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15" LCD (3yr on-site)	£629.00	£739.08
18" LCD (3yr on-site)	£1835.00	£2156.12
14" SVGA 0.28 (3yr on-site)	£79.00	£92.83
15" SVGA 0.28 (3yr on-site)	£95.00	£111.62
15" SVGA 0.28 Multi-Media	£119.00	£139.83
17" SVGA 0.28 (3yr on-site)	£139.00	£163.33
19" SVGA 0.28 (3yr on-site)	£249.00	£292.57
21" SVGA 0.25 (3yr on-site)	£540.00	£634.50
30" SVGA 4.0M (1yr on site)	£1250.00	£1468.75
15" Iiyama Vision Master 350	£140.00	£164.50
17" Iiyama Vision 700	£149.00	£175.08
17" Iiyama Vision Master FST	£235.00	£276.12
17" Iiyama Pro 410	£249.00	£292.57
19" Iiyama Pro 450	£300.00	£348.25
22" Iiyama Pro Diamondtron	£630.00	£740.25
AKF5253 Multisync 14" 1yr RTB	£149.00	£175.08
AKF2 PAL 14" refur 90 days	£99.00	£116.32
AKF5253 Multisync 90 days	£99.00	£116.32
AKF600 SVGA 14" refur 90days	£59.00	£69.33
Multisync A300/A3000 cable	£8.50	£9.99

All monitors inc 3 yrs wty unless specified

## BEST PRINTER PRICES

	Ex VAT	Inc VAT
Canon BJC 1000 colour	A4 £59.00	£69.33
Canon BJC 2000 colour	A4 £75.00	£88.12
Canon BJC 2000 Scan	A4 £139.00	£163.33
Canon BJC 4650 colour	A3 £222.00	£260.85
Canon BJC 4650 Scan	A3 £275.00	£323.12
Canon BJC 7000 colour	A4 £165.00	£193.87
Epson Stylus 460 colour	A4 £69.00	£81.08
Epson Stylus 660 colour	A4 £85.00	£99.87
Epson Stylus 860 colour	A4 £165.00	£193.87
Epson Stylus 1520 colour	A3 £340.00	£399.50
Epson Stylus Photo 750 #	A4 £159.00	£186.83
Epson Stylus Photo EX #	A3 £225.00	£264.37
HP 610C colour	A4 £69.00	£81.08
HP 895CXI colour	A4 £169.00	£198.58
HP LASERJET 1100	£249.00	£292.57
HP LASERJET 2100 PCL	£454.00	£533.45
HP LASERJET 2100 PS	£514.00	£603.95
Photo drivers for #	£58.72	£69.00
Scanner drivers for !	£29.79	£35.00

\*\*\*FREE Acorn driver by request\*\*\*

Check with CTA DIRECT for the BEST prices in the RISCOS world. (Even against alleged trade only suppliers).

## HARD DRIVES / SUB-SYSTEMS

### A3020 A30X0 & I/F

	Ex VAT	Inc VAT		Ex VAT	Inc VAT
60/80MB	£39.00	£45.83		£79.00	£92.83
170MB	£49.00	£57.58		£89.00	£104.57
340MB	£59.00	£69.33		£99.00	£116.32
500MB	£79.00	£92.83		£119.00	£139.83
810MB #	£99.00	£116.32		£125.00	£146.87
1.0Gb #	£109.00	£128.08		£134.00	£157.45
2.1Gb #	£123.00	£144.53		£149.00	£175.08
3.2Gb #	£129.00	£151.58		£155.00	£182.12
4.3Gb #	£149.00	£175.00		£175.00	£205.62

A30X0 version includes CD ROM i/f which can be used in A3020 or A4000. For external A3000 i/f add £20.00 + VAT # includes partitioning software

### 3.5" IDE Hard Drives

	Ex VAT	Inc VAT
210Mb	£25.00	£29.37
250MB	£30.00	£35.25
420MB	£40.00	£47.00
500MB	£49.00	£57.58
2.1GB #	£60.00	£70.50
4.3GB #	£69.00	£81.08
8.4GB #	£75.00	£88.12
10.2GB *	£80.00	£94.00
16.8GB *	£95.00	£111.62
20.1GB *	£99.00	£116.32
30.5GB *	£139.00	£163.33
36.4GB *	£220.00	£258.50

# requires RISCOS 3.6 / 3.7 \* requires RISCOS 4 or Partitioning s/w for only £25.00 + vat

### SCSI HARD DRIVES

1Gb	£50.00	£58.75
2Gb (7200 rpm)	£90.00	£105.75
4.3Gb (5400 or 7200rpm)	£135.00	£158.63
9.1Gb (7200rpm)	£160.00	£188.00
18.6Gb (7200 rpm)	£250.00	£293.75
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For EXT. SCSI I case £50.00 + VAT (inc. cable)

For EXT. Dual SCSI I case £65.00 + VAT (inc. cable)

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### Removable Drives

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IDE Zip 100 int	£55.00	£64.63
IDE Zip 250 int	£119.00	£139.83
IDE 2.2 GB Orb	£175.00	£205.63
IDE require drivers or Suitable hardware support		
Parallel Drives including RISCOS Software		
Zip 100	£99.00	£116.33
Zip 250	£135.00	£158.63
Jaz 2G	£299.00	£351.33
SCSI Drives		
Zip 250M ext	£115.00	£135.13
Nomai 750 (270 & 135sq)	£159.00	£186.83
Jaz 2G int	£235.00	£276.13
Jaz 2G ext	£235.00	£276.13

### Removable Drive media

	Ex VAT	Inc VAT		Ex VAT	Inc VAT
CD ROM	£8.91	£11.61	100Mb Zip	£7.50	£8.81
CD 10 pack	£55.50	£66.50	Zip 5 pack	£34.00	£39.95
CDR 25 pack	£18.72	£22.00	250Mb Zip	£12.76	£14.99
CDR 80Mb 10 pack	£12.00	£14.10	120 Mb LS 120	£5.10	£5.99
CDR 80Mb 25 pack	£25.52	£30.00	650Mb PD	£19.90	£22.33
CDRW 10 pack	£25.00	£28.37	1Gb Jazz	£5.00	£5.99
CDRW 25 pack	£50.00	£58.75	2Gb Jazz	£9.00	£10.88
5.2Gb DVD ORB	£25.00	£28.37	2.2Gb ORB	£33.00	£38.78

### RISC OS 4 £99.00 (£116.33)

Fitting & data transfer, if required, £25 inc or £15 with new HD



## CD-ROM WRITERS

Prices Start

from £139.00 +

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6x4x24x Memorex £189.00 (£222.08)

CD BURN £89.00 (£57.58)

CD SCRIBE 2 £99.00 (£57.58)

CD-ROMS

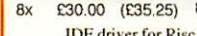
SCSI 8x

Autochanger £75.00 + vat (£88.13)

IDE SCSI

IDE

SCSI



48x £39.00 (£45.83) 40x £65.00 (£76.38)

40x £35.00 (£41.13) 32x £55.00 (£64.63)

8x £30.00 (£35.25) 8x £30.00 (£35.25)

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from £10 + vat

## External CD ROMS

40x CD Tower (6 SCSI drives)

space for HD £449 + VAT

40x IDE (with cable) £85 + VAT

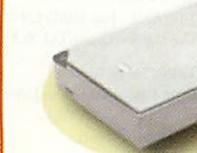
8x SCSI I (with cable) £85 + VAT

40x SCSI I (with cable) £115 + VAT

40x SCSI II (with cable) £120 + VAT

## COLOUR SCSI SCANNERS

All scanners inc Acorn Software



# 3 yr Warranty on ALL Acorn MEMORY why Pay More??

## NEW LOWER PRICES

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A310 RISC OS carrier board	£19	£22.33	32Mb SIMM EDO	£42.00	£49.35
A310 MEMC1a upgrade kit	£20	£23.50	32Mb SIMM FPM	£49.00	£57.58
A400/1 1Mb Upgrade (per Mb)	£25	£29.38	32Mb high clearance	£59.00	£69.33
A3000 1-2Mb Non-Upgradeable	£15	£17.63	64Mb SIMM	£75.00	£88.12
A3000 1-4Mb Upgrade	£35	£41.13	128Mb SIMM from	£130.00	£152.75
A3000 Serial Port Upgrade	£19	£22.33	1Mb VRAM	£25.00	£29.37
4-8Mb Up. (A310, 440, 3000*)	£55	£64.63	2Mb VRAM	£75.00	£88.12
A310 1-2Mb Upgrade	£20	£23.50	1-2Mb (exchange)	£65.00	£76.37
A310 1-4Mb Upgrade	£45	£52.88			
A320/4000 2-4Mb Upgrade	£40	£47.00			
A5000 2-4Mb Upgrade	£45	£52.88			
A5000 4-8Mb 25Mz* & 33Mhz	£55	£64.63			
NEW A540 4Mb	£45	£52.88			
FPA10 for A5000 or Arm 3 Card	£45	£52.88			
Replacement VIDC or IOC chips	£20	£23.50			
* rework if required	£25	£29.38			

Risc OS 3.11 Rom upgrades  
£25.00 exc Vat (£29.38)

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with FPA socket £45.00 £55.88 inc.  
FPA 10 (25Mhz) £84.26 £99.00 inc.

RPC 16 bit Audio & mixer £59

## MICE & KEYBOARDS



High Quality  
Acorn ERGO  
Mouse £12.00  
 (£14.10)

	Ex. VAT	Inc. VAT
Acorn Trackerball/Mouse NEW	£29.78	£34.99
Acorn Original Mouse	£20.00	£23.50
Acorn ERGO Mouse NEW	£12.00	£14.10
A7000 replacement Mouse NEW	£10.00	£11.75
Ergo (std) Risc PC Keyboard	£21.28	£25.00
Ergo curved Risc PC Keyboard	£29.78	£34.99
Lower CASE Keyboard (PS2)	£29.78	£34.99
A400/A5000 replacement Kbrd	£59.00	£69.33
A400/A5000 Ergo Keyboard	£69.00	£81.08
A4 replacement keyboard	£49.00	£57.58
A4000 Keyguard (special needs)	£25.00	£29.37
A3000 /A300,400,500 Keyguard	£25.00	£29.37
A3 touchpad for Concept Keybrd	£25.00	£29.37
Cooling Fans	Ex VAT	Inc VAT
Fan for A310/400	£15.00	£17.62
Fan for RPC psu / A7000	£15.00	£17.62
Fan for PC-Co processor	£4.00	£4.70
5.25" Hard Drive fan kit	£15.00	£17.62

## ACORN MKII TRACKBALL & MOUSE



£29.79 +  
 (£35.00)

(All Prices below include VAT)

## THE BARGAIN BASEMENT

## NETWORKING

### ETHERNET INTERFACES

	Ex. VAT	Inc. VAT
A3000 int. 10base2 or T, Access+	£89.00	£104.58
A400/A5000 10base2 or T Access+	£89.00	£104.58
A400/A5000 10base2 & T Access+	£99.00	£116.33
A3020 10base2 Access+/ext. MAU	£94.00	£110.45
A3020 10baseT Access+/ext. MAU	£94.00	£110.45
Risc PC/A7000 10base2 & T Acc+	£99.00	£116.33
Risc PC/A7000 10base2 Access+	£79.00	£92.83
Ant Access + ROM upgrade	£10.00	£11.75

### Network Hubs (more available)

	Ex. VAT	Inc. VAT
8 Port 10bT +1 10b2	£35.00	£41.12
8 Port 100 *special*	£89.00	£104.57
8 Port 100/10 Auto	£99.00	£116.32
18 Port 10 16T+ 2BNC	£75.00	£88.12
16 Port 100/10 Auto	£229.00	£269.07
16 Port 100/10 Auto (inc 3 port switch)	£269.00	£316.07
24 Port 100/10 Auto	£299.00	£351.32
24 Port 100 *special*	£249.00	£292.57

### Cables

2M	£3.00	£3.53
3M	£5.00	£5.88
5M	£6.00	£7.05
10M	£10.00	£11.75
20M	£15.00	£17.63

State 10base2 or 10baseT  
any size made to order

We supply and / or install all  
network components please  
ring for your requirements

### NETWORKING SOFTWARE

Topcat site licence	£489.00	(£567.50)
NTfilter site licence	£97.00	(£113.98)
Omniclient site licence	£489.00	(£567.50)
Lanman98 single user	£35.00	(£41.13)
Win95FS single user	£35.00	(£41.13)
Lanman or Win95FS	£110.00	(£129.25)
10 user site licence	£110.00	(£129.25)
Lanman or Win95FS 20 user site licence	£156.00	(£183.30)

## Network Specials

TOPCAT Site licence £450 (£528.75)  
!Browse Site Licence £170 (£199.75)  
(Offers available while special stocks last)

## ARCSHARE

Acorn networking for PCs  
£29.95 exc Vat £35.19 inc Vat  
see network section for Cards etc

## Hard Drive Specials

### A3000/A3010 170mb

HD & I/F £69 + Vat (£81.08)

270mb HD & I/F £76 + Vat (£89.30)  
(Offers available while special stocks last)

A selection of 2nd user 40 , 80 , 120 & 200 MB  
drives is available at only 10p / MB  
ie £12.00 + Vat (£14.10)

We can repair/upgrade your  
machine(s) and monitors at  
competitive prices please ask  
All Acorn's, BBCs & PCs

## Digital Camera Specials

prices include Photolink software

Olympus C-21	£510.63	£599.99
Olympus C-2000	£595.74	£699.99
Olympus C-2500	£1021.27	£1199.99

## Various Hardware Bargains

	exc VAT	inc VAT
A3000 2Mb bases from	# £45.00	£52.87
A310 2Mb bases from	# £79.00	£92.83
A3020 2Mb bases from	# £99.00	£116.32
A4000 2Mb bases from	# £140.00	£164.50
A5000 4Mb bases from	# £210.00	£246.75
RPC 700 bases from	# £399.00	£468.83
SCSI 4x8x autostacker (new)	£125.00	£146.88
A310 4000 Floppy drives	# £12.00	£14.10
A3000 / A400/1 Floppy drive	# £12.00	£14.10
A30X0 keyboards	# £20.00	£23.50
A3000 PSU's	# £20.00	£23.50
A30X0 /4000 midi /user card	# £30.00	£35.25
A30X0 analogue / user card	# £20.00	£23.50
A30X0 IDE / user port cards	# £40.00	£47.00
A30X0 Castle IDE cards	£35.00	£41.12
A3000 Dual Podule expand.	# £30.00	£35.25
A4000 PC card boxed	# £35.00	£41.12
A4000 Motherboards (new)	£70.00	£82.25
Scanlight 256 hand scanner	# £42.00	£49.35
VIDC Enhancer	£17.00	£19.98
RiscPC 486sx33 PC cards	# £25.00	£29.37
A5000 /A400 Ext CD-ROM	# £42.00	£49.35
A5000/4000 Joystick Cont.	£20.00	£23.50
BBC Printer cables	£4.00	£4.70
BBC master PSU	£10.00	£11.75
# all 2nd user items 90 days Wty		

## Acorn Software Bin

### £5.00 or under (prices inc. VAT)

Boxing Manager	£5.00
ColourSep (Colour Separation Software)	£5.00
D'File Font Pack (Academy)	£5.00
D'File Font Pack (Balmoral)	£5.00
D'File Font Pack (FreeStyle Script)	£5.00
D'File Font Pack (Manhattan)	£5.00
D'File Font Pack (Mastercard)	£5.00
D'File Font Pack (Old Towne 536)	£5.00
Jahangir Khan Squash	£5.00
Outline font (BookM)	£5.00
Quest for GOLD	£4.00
<b>£10.00 or under (prices inc. VAT)</b>	
10 out of 10 any title	£9.00
Arm Tech Labeller	£9.00
Arm Tech ClipArt (various per pack)	£8.00
Diary +	£8.00
FIRE and ICE	£10.00
Galactic Dan	£10.00
Guile	£10.00
HERO QUEST	£10.00
My World Support Disc Ancient Egypt	£10.00
My World Support Disc Ancient Greece	£10.00
Wavelength	£10.00
World Class Leaderboard (GOLF)	£10.00
Zool (HD)	£10.00

## Acorn Software Bin

### £15.00 or under (prices inc. VAT)

A3010 Joystick Controller Software	£15.00
ChildPlay (desktop frontend)	£14.95
RAMplify	£14.95
Rosie & Jim Talking Activities	£15.00
Small (RPC)	£15.00
10 out of 10 all 18 titles	
Ancient Lands (M'soft) CD Acorn reader	£45.00
Ankh (HD)	£20.00
Birds of War	£20.00
Clares Cardshop	£20.00
Creator 2	£25.00
Drifter	£30.00
Game ON (for RPC/ A7000)	£15.00
Global Effect	£20.00
Imagery Art Package	£20.00
James Pond (Underwater Agent)	£23.00
Nuclides II and Elements II (save £5.00)	£25.00

## CD General Resource Titles

10000 Clip Art (Draw Format)	£5.00
550 Acorn fonts	£5.00
D'File PDCD 5	£10.00
Symphony Music collection	£5.00
TopicArt CD	£5.00

## NETWORKING

### ETHERNET INTERFACES

	Ex. VAT	Inc VAT
A3000 int. 10base2 or T, Access+	£89.00	£104.58
A400/A5000 10base2 or T Access+	£89.00	£104.58
A400/A5000 10base2 & T Access+	£99.00	£116.33
A3020 10base2 Access+/ext. MAU	£94.00	£110.45
A3020 10baseT Access+/ext. MAU	£94.00	£110.45
Risc PC/A7000 10base2 Access+	£79.00	£92.83
Ant Access + ROM upgrade	£10.00	£11.75

### Network Hubs (more available)

	Ex. VAT	Inc VAT
8		

# Risc PC rebuilt?

Castle have announced that not only have they stepped into the Internet market place with a totally new browser, but have also been developing newer and much faster Risc PC machines.

While the details of the new machine are still sketchy, the Risc PC's are still expected to be using the ever-green StrongARM 233 revT boards and RISC OS 4, but with some modifications to improve the performance.

Oregano is the name of Castle's much awaited browser. Developed by Oregan (hence the name!) for their range of NetStations, this new browser includes the latest version of JavaScript, SSL, is HTML 3.2 compliant, able to upload over the Web (up until now, only supported in part by Fresco) and is RISC OS plug-in compliant - meaning that you can still use the plug-ins supplied by Acorn such as Java.

Jack Lillingston, MD at Castle said "We are delighted to bring this news to the RISC OS world. This product marks the start of a new progressive development plan. You can expect to see further major new hardware over the coming years." Commenting on Oregano, he said "The release of Oregano

is further proof of our commitment to bringing top quality products into the RISC OS Market. We have worked hard to ensure that it has all the power needed for the most demanding user, yet remains friendly enough for the beginner to pick up and use with confidence."

Combined with the full-time support team keeping up to date, this

looks to be one of the most promising developments in the internet scene for RISC OS machines in a long time. The software will be installed on all new Castle machines after it's release.

The browser is expected to retail at about £50.

For further details, contact Castle on 01728 723 200, or email [sales@castle.org.uk](mailto:sales@castle.org.uk)



## Free security for all

Just as the current edition of *Acorn User* was going to press, Andrew Rawnsley of R-Comp contacted us to say that their new 128-bit SSL module is available now to download from their web site ([www.rcomp.co.uk](http://www.rcomp.co.uk)). The software is supplied as a module, providing SWI calls for software developers to use within their software.

R-Comp have also told us that

they will have an updated version of their popular WebsterXL package incorporating the SSL module available for Wakefield.

Also in the pipeline, being developed by programmers all over the country, are other secure socket layer applications (such as secure Telnet). This new version of WebsterXL will also include the ability to upload over the web,

something emphasised by the Government in its current drive to get all schools online.

Andrew stated that the module is free to download to anyone outside of the UK and is allowed to be exported to "friendly" foreign countries. This has been cleared by the DTI.

R-Comp can be contacted on 01925 755043.

# G'day POSSUMS

No, we haven't been watching too many Australian soaps. What we are talking about is the RiscStation assault on the point of sale (POS) market with an R7500Lite based POSSUM terminal.

What is POSSUM?

A POS terminal is the hardware behind barcode readers at your local ASDA. In the RiscStation case, it's a stripped-down Lite with four serial ports and 2 x 7.5v power take-off jacks for standard POS peripherals (such as cash drawers and bar code readers). Another trick feature is the intercom system which works over ethernet, taking full advantage of the hardware.

While not so much the case here in the UK (yet!), quite a lot of businesses in Australia use RISC OS computers behind the scenes – not where the consumer can see them. In the RISC OS world, we have long known that advertising is probably our worst facet. The POS terminal may help to change this.

Mal McClenaghan of RiscStation Australasia commented to us "Until the RiscStation Lite arrived, a RISC OS-based POS terminal was simply not going to be a practical venture. The costs involved in expanding a standard machine to what we

needed were prohibitive. The standard 10baseT Networking and the ISA slot on the Lite gives us the facilities we need without going to any great expense"

The software for the system has been created by Image Software here in the UK. Called EBMS (Electronic Business Management System), it caters for Australia's complex new GST system without sacrificing any of the software's functionality for its native VAT. This means that by changing "OZ" to "UK" in the software configuration means that businesses here can use the same software.

Seen as a real threat to PC-based POS systems, EBMS has all the same functionality. On top of that, there is

support for the rental sectors, facility for creating customer

membership/loyalty cards. More than that though, is the addition of barcode creation, printing and network support for multiple terminals, the unique ActivPromo™ time/item scripted discount system ("three for the price of two" to you and me or end of the day special offers) – it's easy to see this is a formidable package.

ActivPromo can be seen as a businessman's friend. Not only does it cut down on loss ("who want's excess cream cakes over at the end of the day that have to be thrown out") but as all is required to change the EBMS software is a change in a script file.

Further details on the hardware are available from RiscStation ([www.riscstation.co.uk](http://www.riscstation.co.uk) or [www.riscstation.com.au](http://www.riscstation.com.au)) with software from Image ([www.argonet.co.uk/image/](http://www.argonet.co.uk/image/)). If you don't have Net access, why not see it in action at the RiscStation stand at Wakefield?



## AU CD 9 problems

A few people have commented on empty directories on the last Acorn User CD. We are currently looking into this problem. Hopefully, any missing areas will be on the 10th CD.

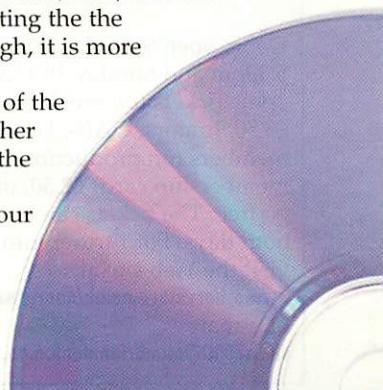
There has been some discussion in the comp.sys.acorn.misc newsgroup over a problem between the CD and *Pluto* and also running the *AU\_Start* file giving an "can't find InetDbase" error. While we are not sure what the conflict is between *Pluto* and *Fresco* (as they can be both used together normally), the InetDbase problem is simpler to solve.

Inside the *!Boot* directory is another directory called *Resources* and inside that an application called *!Internet*. The InetDbase points to this but unfortunately some versions of the *Boot* structure don't have it. A simple test to determine if this application exists is to do the following

1. Press F12

2. Type at the \* prompt  
`show inet* (return)`
3. If the computer lists *InetDBase\$Path*, then the directory is there. If you are getting the the *InetDBase not found* error though, it is more likely that this will not appear.
4. On the AU CD 8 is a copy of the new *!Boot* structure. You can either install this or copy from inside the *!Boot* application on the CD the *!Internet* application to inside your own *!Boot*.

On the 10th AU CD will be an application which will install the *!Internet* application for you.



# Wakefield 2000

## The Acorn RISC OS Show

It must be considered an great achievement for the Wakefield Acorn Computer (User) Group that this is their 5th annual RISC OS show (which is to be held again at the

### Super show software

In addition to new hardware, there will be a pile of new software available:

- Castle Technology will be selling their new *Oregano* Web browser (see other story);
- Spacetech will be showing the latest digital cameras with PhotoLink and PhotoReal drivers;
- RISC OS Ltd will have the much awaited new version of *Printers* available.
- Old favourites like *Sibelius* and *Impact-3* will be demonstrated.

Another old favourite was the Lucky Dip of the old "Micro User" shows. *Acorn User* (in association with RISC OS Charity Projects who are selling both the Kosovo CD and China CDs) are reviving this. Tickets cost £1 per dip with a very valuable prize each day and other significant prizes of RISC OS hardware and software. Not all tickets will be winners, but the proceeds go to Steve Turnbull's China Charity Bike Ride on behalf of Mencap.

Doors open Saturday 10am to 5.30pm and Sunday 10.15am to 4pm. Tickets (on the door): Adult £3.50; Juniors, OAPs, Foundation members (on production of membership card) £2.50; under 5s go free. The tickets can be used on both days. For further information visit the Web site at: [www.cybervillage.co.uk/acorn/wakefield](http://www.cybervillage.co.uk/acorn/wakefield) or e-mail: [show2000@cumbrian.demon.co.uk](mailto:show2000@cumbrian.demon.co.uk)

Thornes Park Athletics Stadium). And what a show it promises to be with all the major players in the RISC OS market place in attendance (such as Castle, RiscStation, MicroDigital, Millipede and of course, RISCOS Ltd), and with many new products which will be available, it is surely a testimony to the resilience of the platform.



Cerilica will be showing off their new "Vantage" art package and also have copies available for sale. The wait is now over.

We will have our games arcade again (supported by R-Comp and RiscStation) – in the past, this has been a very popular area and this year, with the advent of the *Chaos Engine*, it looks to be busier than ever.

Hardware will be well represented at the show with Castle showing off their new, faster Risc PC range and optimised A7000+ machines, RiscStation selling their new range of NetWORX and NetWORX HD machines plus the brand new RiscStation Scorcher, Scorcher Twindeck CD Authoring systems and RiscStation EPOS system (see other story).

On the back of the world wide success of "Who wants to be a millionaire?", Millipede Electronic Graphics will be demonstrating the revolutionary Imago board and MicroDigital demonstrates their Mico range.

### Show Theatre

As ever, the show will also have the regular development theatre on the first floor. The schedule (at going to press) is

#### Saturday 20th May

11.00	RiscStation
12.15	Cerilica
13.15	Castle Technology
14.15	Millipede Electronic Graphics
15.00	Mike Cook
15.45	RISCOS Ltd
16.30	Castle Technology

#### Sunday 21st May

10.30	Mike Cook
11.10	RiscStation
12.20	Cerilica
13.15	Castle Technology
14.10	Millipede Electronic Graphics
15.00	RISCOS Ltd

RiscStation presents...

Cerilica into 2000

New Acorn Developments

Imago

*Subject to be confirmed*

What's new at RISCOS

New Acorn Developments

*Subject to be confirmed*

RiscStation presents...

Cerilica into 2000

New Acorn Developments

Imago

What's new at RISCOS

Two new hardware packs from

# RiscStation

More memory, more storage,  
more value!

## RiscStation Lite **R7500+**



56 Mhz ARM7500FPE (with integrated floating point co-processor)

RISC OS 4.03

64Mb 60ns EDO System Memory

48X Atapi EIDE CD ROM Drive

8.4Gb ~~EIDE~~ Hard Drive

4/6Mb ROM/Flash Memory containing RISCOS 4 and Utilities

Micro ATX Desktop or Mini/Midi Tower Configuration

Minimum 60 Watts External Stereo Speakers

2 x Serial Port \*Rated at 460k baud

2 x PC Style Game Port supporting Midi In/Out/Through

2 x High Speed EIDE Ports \*Supporting up to 4 devices

1 x 10baseT Network Port with Wake On Lan Support

1 x EPP/ECP Fast Parallel Port

1 x IRDA Infrared Interface Support

1 x High Density Floppy Drive Port

1 x 15Pin VGA Connector

Full 16Bit OPL3 Stereo Sound Sampler & Mixer with FM Synthesizer support, 2 CD Mixer Ports 3 x 3.5mm Jack Sockets for Line in/Mic In/Headphone & Speaker Out

PS2 Style Keyboard Input

PS2 Style 3 Button Mouse Input

Easi Writer Pro, DrawWORKS Millenium, Fireworkz Pro, Ankh, Botkiller II and much more free software.

From **£579** + VAT

## RiscStation **neTWORK HD**



56 Mhz ARM7500FPE (with integrated floating point co-processor)

RISC OS 4.03

8Mb 60ns EDO System Memory

2.1Gb ~~EIDE~~ Hard Drive

4/6Mb ROM/Flash Memory containing RISCOS 4 and Utilities

Micro ATX Desktop or Mini/Midi Tower Configuration

2 x Serial Port \*Rated at 460k baud

2 x PC Style Game Port supporting Midi In/Out/Through

2 x High Speed EIDE Ports \*Supporting up to 4 devices

1 x 10baseT Network Port with Wake On Lan Support

1 x EPP/ECP Fast Parallel Port

1 x IRDA Infrared Interface Support

1 x High Density Floppy Drive Port

1 x 15Pin VGA Connector

Full 16Bit OPL3 Stereo Sound Sampler & Mixer with FM Synthesizer support, 2 CD Mixer Ports 3 x 3.5mm Jack Sockets for Line in/Mic In/Headphone & Speaker Out

PS2 Style Keyboard Input

PS2 Style 3 Button Mouse Input

Networx software pack.

From **£449** + VAT

RiscStation Ltd.  
168 Elliott Street  
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United Kingdom  
M29 8DS

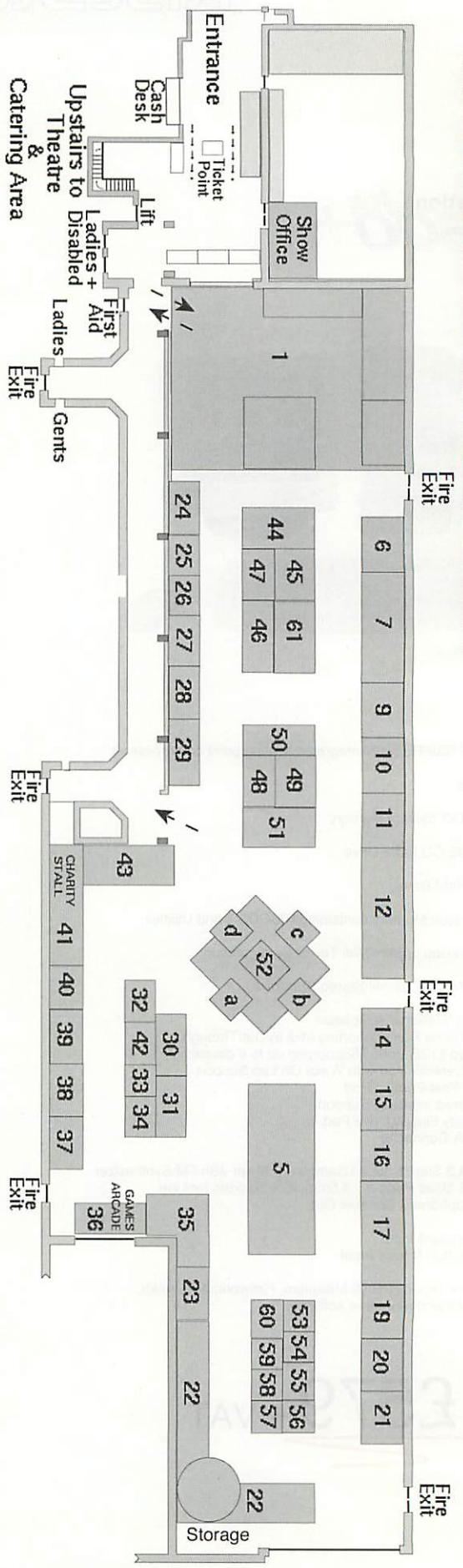
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RISC OS compatible products for the new Millennium

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Website : [www.riscstation.co.uk](http://www.riscstation.co.uk)

# Walkerville 2000

The Acorn RISC OS Show



1	Castle Technology Ltd	37	Artex Software	52	RiscStation
5	Cerilica	38	Reflex Electronics Ltd	52	Simtec Electronics
6	ARM Club	39	Si-Plan Electronics Research	53	Jon Duddington
7	MicroDigital Ltd	40	Wakefield Hospice	54	Zenta Multimedia
9	Liquid Silicon	41	Charity Stall	55	Cd Computing
10	Desktop Projects	42	RiscAction Magazine	56	Paradise Software
11	Acorn Publisher	43	Davyn Computer Services	57	Chris Morison (Organizer)
12	CTA Direct	44	APDL	58	David Buck (RiscCad)
14	Spacetech	45	Risc World Magazine	59	Serious Statistical S/ware
15	Acorn User	46	Millipede Electronic Graphics	60	Really Good Software Co
16	Aleph One Ltd	47	iSV Products	61	Cumana/Cannon Computing
17	ArgoNet	48	Eesox		
19	The Data Store	49	Wakefield Acorn Computer Gr		
20	Derby Area Risc Club	50	Icon Technology		
21	Assn of Acorn User Groups	51	Clares Micro Supplies		
Stands 53 to 60 form the Small Developers Village and are subsidised by RiscStation Ltd					

Stands 53 to 60 form the Small Developers Village and are subsidised by RiscStation Ltd

# 0% Finance

On CJE's 'Running RISC OS' range Now including

## RiscStation Lite

### Examples

**RiscStation Lite 64MB, HD, CD & 15" £790**

Deposit £100 + 6 months @ £115

Deposit £390 + 10 months @ £40

**RiscPC WebWizard 64MB, 2MB, 17.2GB, Internet Pack, RO4 & 15" £1620**

Deposit £234 + 6 months @ £231

Deposit £810 + 10 months @ £81

Please ask for details on your required specification.

Finance subject to status, formal written details on request.

Pocket Book 256K £70

## S/H RiscPCs from £400

*Previously cherished, o.k. we mean second hand!*

RiscPC, RISCOS 3.60, 16MB, 1MBvram & HD £400

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1MBvram, HD, CD & 14" Monitor £500

A7000, RISC OS 3.60, 32MB DRAM, HD and CD £300

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Upgrades with s/h RPCs & A7000s :-

New Compatible Mouse £5

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or have it upgraded to your requirements e.g.

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S/H items have 3 months warranty  
upgradable to 1 year for 5% of price.

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### 'Free Internet' connection pack!

from £20

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### StrongARM Upgrades

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Now available

£284

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### StrongARM +RISC OS 4 £304

Fitting & HD reformatting Service

£25 or £15 with New Hard Drive

Courier collection & return also available.

Zip Drives PP inc SW £110 **Special Price**

SCSI 4.3GB HD £145 **Special Purchase!**

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**IIYAMA 17" Pro410 Naturally Flat 0.25mm ag £310**

Memorex 50 pack CDRs on spindle 650MB 74min. £42

**CD ReWriter SCSI Yamaha 6416 with S/W (needs SCSI interface) £260**

**Acorn C++ Less than HALF PRICE £125†**

Acorn SCSI Interface AKA32 £50

**56K V90 Modem £80**

**10.2GB IDE Hard Disc £125**

**34GB IDE Hard Disc £300**

### Psion Revo

16MB

V. Compact!

£300

### Psion netBook

7.7"LCD

640x480, 32MB

90% Keyboard

StrongARM

190MHz

£880

RPC-PC Network pack, RPC NIC Int., PCI Int. card, cables & LanMan98 £185

**250MB Zip Drive** SCSI Ext. £185, Printer Port version with S/W £215, Int. IDE £165

**S/H Access+ Interfaces** Podules from £60, RiscPC NIC 10b2&T £70

CJE Prices include  
VAT & delivery

**DRAM for RiscPC/A7000 32Mb £60, 64Mb £90 & 128Mb £190**



&



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Prices subject to change & stock.

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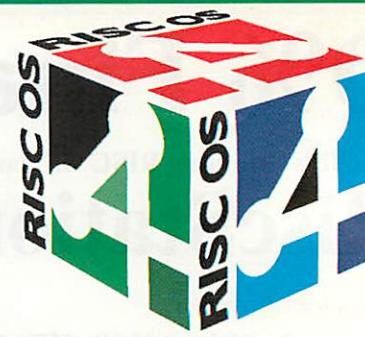
Worthing

West Sussex

BN11 2EN

Still waiting for the bugs to be fixed in RISC OS 4 before you upgrade?

Yes: We use Acorn Advance at school and that doesn't work does it!



Oh yes it does! Acorn Advance is now fully compatible with RISC OS 4 thanks to a patch that is available from Clares Micro Supplies Web Site.

<http://www.claresmicro.co.uk/>

*Great, but no-one is developing new software, and I can't do my Internet Banking on my Acorn.*

Oh yes they are! Softease, for one, are developing a major new educational title, Cerilica will be launching Vantage very soon and new versions of TechWriter and EasiWriter come out so fast, it's unbelievable!

As far as Internet Banking is concerned, you can now get 128bit SSL support for the ANT Internet Suite / Voyager, and Castle will soon be launching a brand new Web Browser.

Oh, and in case we haven't mentioned it before there are now over 2500 RISC OS 4 users out there now in the England, Scotland, Wales, Ireland, Holland, Germany, France, Belgium, Norway, Sweden, Denmark, Israel, Russia, Iceland, Australia, New Zealand, Hong Kong, Japan, Korea and South Africa (to mention a few)

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# RISC OS Gaming

Jan Klose gets steamed



also scrapped their gaming plans and *TEK* with it.

This is why the game hasn't been released so far. But don't be afraid, development is progressing steadily, and if everything goes on as expected, you will be able to see a fine running version of the game at the Wakefield 2000 show.

Depending on the success of *TEK* and *Iron Dignity*, Artex will release further titles for RISC OS. A 'Special Missions' pack for *TEK* is already planned.

## Consoles or no?

People who love their RISC OS computer but still want to play games are likely to buy consoles like the Playstation. RISC OS will never offer the variety of games that can be found on a console, and no conversion will appear fast enough to satisfy a waiting gamer.

Don't get me wrong – there are still many people out there who would like to pay for a good "native" computer game, even if RISC OS is not famous

as a games platform anymore. But there will always be the demand for some entertainment, no matter what machine you are using, be it a Silicon Graphics computer used for rendering, a Mac for publishing – or RISC OS.

## What's a good game?

Despite the desire to receive movie-like games, there's still a small demand to play a game that's just fun. Years ago it was easy to deliver – and sell – such a game, and thus many gamers still have the opinion that any game can be fun that has good gameplay even if it doesn't come with a huge presentation. The answer is that yes, these "simple" games can be much fun, but no, you cannot sell them any more.

When you look at the PC games world, you will see really great games titles whose presentation comes close to an interactive movie for as little as £5, even though it was released only two years ago. At the same time, you find out that even the oldest games ever released on RISC OS machines are still sold for their original price of £25. Buyers want equality; they are willing to pay for good products, but "good products" is defined differently today.

Again, the conclusion is that the old times of "simple but great" games has passed. Today we want state-of-the-art with loads of great optical effects, or simple funny games that are available for free – or maybe as a shareware product. This is a hard situation for games programmers on RISC OS. So the only solution is to drop one-man projects and concentrate on one or two OS-wide projects, or do conversions. It will be worth it.

END

**B**asically, there is no such thing as the games scene in the RISC OS market. There was one some years ago, but the demand has shifted. Standards are now dictated by PCs and consoles, and people have stopped buying small "fun to play" games.

Nowadays, a game must come along with a huge presentation and gameplay that guarantees many hours of entertainment.

There are no RISC OS games companies who can deliver games with such a standard. That is simply down to the fact that a state-of-the-art game requires lots of money and a whole development team, and thus free-time programmers can't and don't want to afford such productions. And that's understandable when watching sales numbers of games released for RISC OS only.

So there are only two possibilities right now to release games on RISC OS: Conversions from the PC, and homegrown games that get their financial support from elsewhere and that's what Artex are doing. Right now we are developing *TEK* and *Iron Dignity*.

*Iron Dignity* will appear on the PC as well, so we don't have to worry about the copies sold for RISC OS; we just have to cover the costs for the RISC OS development. These are not much higher than those for a 'standard' conversion.

*TEK* is purely a RISC OS product and will appear for RISC OS first, but PC, Mac and Linux conversions are planned as well, and this option justifies the massive development costs already put into *TEK*.

Originally, *TEK* was planned as a joint-venture between Acorn Computers Ltd. and Artex Software, aimed at the NetStation, but when Acorn fired half of their staff, they



Florian Stadlbauer (left) and Jan Klose (right) at the Wakefield Show

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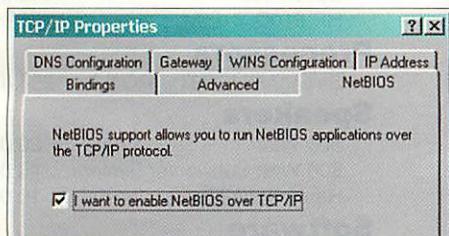
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# Enemy without

Don't let the joys of unmetered continuous Internet access blind you to some very real security risks. Making Internet connection from networks containing Acorn machines and just one PC can allow ANYONE to access your PC's shared resources from the instant of connection to the Internet! Port scanner software is freely available and you can be sure that someone will try to probe your network and access your shared drives.

The culprit is the PC's NetBIOS Windows protocol used to allow network file and print sharing. RISC OS cross-platform software like Warm Silence's *!LanMan98* and David Buxton's *!SmbServer* use the protocol called TCP/IP to talk to PCs. TCP/IP and NetBIOS are "bound" together by default settings in the PC Networking control panel, and on connecting to the Internet, NetBIOS via TCP/IP can 'blab'



*Do you really, really want to?*

## Shoestring network

David O'Shea's *!PPPServ* is a modem emulator that enables TCP/IP networking between an Acorn machine and a Windows PC using the serial ports as the network connection. Compared with volume-produced network interface cards for the PC, the high cost of Acorn NICs makes this technique worth considering, but has to be weighed against the much lower communication speed available. Though if 115,200bps is usable on the Acorn machine, this serial PPP link is considerably faster than a modem connection to the Internet.

Matthew Lee has set up a Web site at <http://www.clementlee.freesserve.co.uk/> to help you set up *!PPPServ* on Acorn machines, and configure the PC networking

## Shields UP!

Internet Connection Security for Windows Users  
by Steve Gibson, Gibson Research Corporation

**Greetings!**  
Without your knowledge or explicit permission, the Windows networking technology which connects your computer to the Internet may be offering some or all of your computer's data to the entire world at this very moment!

*Keptin, they've opened fire!*

your secrets to all enquirers. You should protect all PC shared discs using long alphanumeric mixed case random passwords, which is a pain but you only need to enter them once a session.

Your local network could be isolated from the Internet with a second network card, or even better, using a cheap Linux box as a router. We don't think of Acorn machines as being under surveillance, but PCs certainly seem to be.

Certain shareware Windows programs with a freeware option contain self-scheduling routines that attempt to access the Internet while you're online, to download display adverts that pay for the software. If you browse Web pages on your local network, these programs think you're online and can trigger a dial-out without your permission.

You can read and learn more about all these dangers on Steve Gibson's *Shields Up!* page at <http://www.grc.com>

settings. The wiring of the null-modem serial cable required is shown together with clear set-up details for both new and older Acorn machines. Step-by-step instructions are also given for setting up the PC's networking and dial-up adapter.

The software required for the Acorn *Internet* and *PPP* interfaces is listed, almost all of which has featured on past and recent *Acorn User* cover CDs, and other items are downloadable from links to their authors' Web sites. Matthew also describes a neat method by which you can simultaneously use the PC to dial up to the Internet, while avoiding the NetBIOS unauthorised access problem discussed in the story above.

## In brief

### Radio Ga Ga

Philip Hardy's *MP3Radio* client enables Acorn browsers to connect to Internet radio stations that offer MPEG Layer 3 audio streams. Examples of these can be found in the *SHOUTcast Showcase* at <http://www.shoutcast.com/>.

Take care when you listen to these as many are on the "cutting edge" of broadcasting presentation, acceptable language and decency. An addition to your *MimeMap* file may be necessary to handle .pls playlist files.

Philip's *HTML Help* file describes the simple installation for *Fresco* and *WebsterXL*. To add MP3 Radio to your Acorn browsing experience tune in to:

<http://www.kiwisoft.co.uk/>

### Red Hot Ant

Among the rush of ISPs to offer free Internet phone calls, one stands out simply for this sentence on their FAQ page. "RedHotAnt will support all O/S from Windows through Mac, Amiga and Acorn." Well, whaddya know! RedHotAnt promises three levels of service at £10, £20 or £30 per year plus a one-off fee of £30.

For your 60 quid you'll get 24 hours per day/7 days per week, free 0808 access, unlimited e-mail addresses, mail forwarding and auto-responding, virus detection and filtering, unlimited Web space, domain name hosting, news access and so on.

The only snag seems to be that by the time you read this, the first 50,000 subscribers will have been signed up so speed might be an issue – and it's worth pointing out that you are automatically disconnected after a couple of minutes idle time.

I wonder how many Acorn users visited <http://www.redhotant.com/>?

### Contacting me

David Dade:  
[comms@acornuser.com](mailto:comms@acornuser.com)



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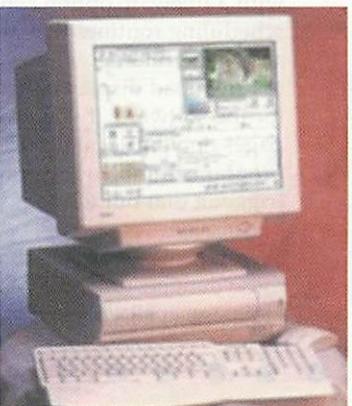
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# The right touch

I'm quite often asked by people new to the Acorn scene if there is a typing tutor program available for our machines. I'm pleased to be able to say that I've found one and not only that, it's a very good one too.

*SESType* is a nicely finished touch-typing course program in which you must copy out a sequence of letters as accurately as you can. The program will then gradually introduce more and more letters until you are familiar with the entire keyboard.

There are 900 exercises in total, including sections to help you increase typing speed, give you hints as to which finger to use to type the next letter, special exercises to improve 'difficult' letters and even audio cues and a comprehensive statistical analysis window.

Version 2 has just been released which not only offers all the features listed above but also includes graphs to show your speed history and accuracy of each letter but also support for multiple users and an improved configuration screen.

What's even more impressive is that the whole application is public domain. I'm beginning to think that there actually is such a thing as a free lunch – or perhaps it's just the generosity of RISC OS programmers.

When you load *SESType* for the first time you are prompted to enter your name. This is so each user can have their own statistics and exercises. If you subsequently load the application again you can either

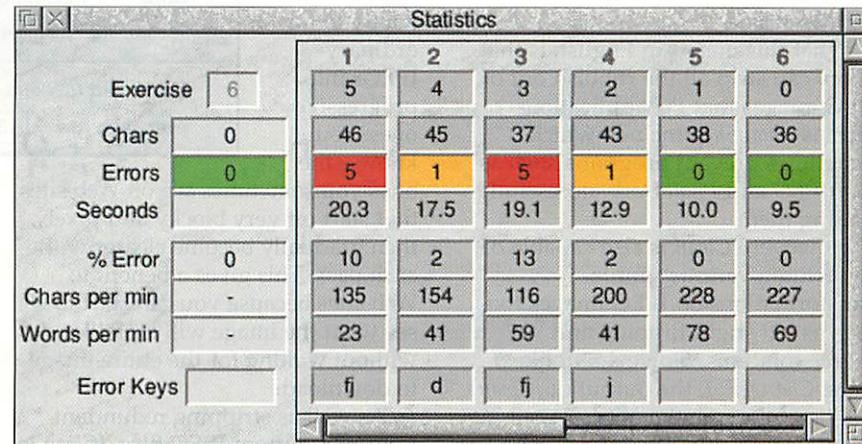


Figure II: I'm sure your results will be better

continue with a previous user or enter another new name. Each person can thus progress at their own speed and continue where they left off.

Figure I shows the main window where you perform the various exercises. As you can see, it's nicely presented and has lots of options without being daunting or difficult to pick up for the beginner.

A separate 'statistics' window (Figure II) gives you a real-time analysis of various tally's such as your current typing speed, in characters per minute as well as words per minute, and also the number of errors you make. A useful ability of the program is being able to work out which keys you are having difficulty with and display these so that you know where your weaknesses lie.

You can see that I have difficulty with the e,f,i,j,o and t keys – in fact

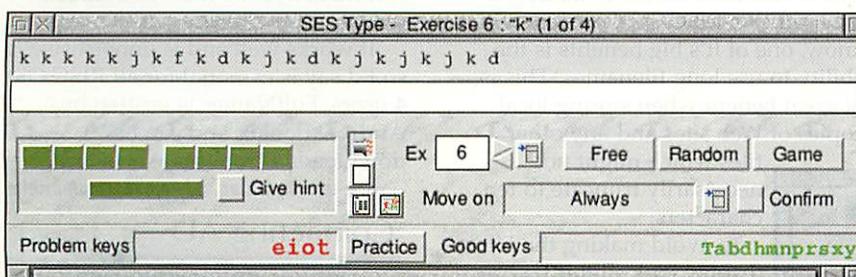


Figure I: A window you'll get to know very well indeed

nearly all of them – but I was only messing about, at least that's my story and I'm sticking to it

Once you've done a few sample exercises, you can build up a picture of where your weaknesses lie and *SESType* offers you an option to practice the keys that give you trouble.

If you're really having problems you can always turn on the hint option, which will graphically highlight where the next key is positioned on the keyboard.

Also included in the archive is a simple two-player game where you must balance a seesaw containing a bucket of water on each side. Each player is rapidly presented with various keys to press which, if successful, will tilt the seesaw in his or her favour. The person who presses the most keys correctly wins the game. This is a nice bonus application and is surprisingly addictive for such a simple game.

*SESType* is written by Peter Hillman and can be freely downloaded from his web site at [www.ee.ed.ac.uk/~pmh/ART/Type.html](http://www.ee.ed.ac.uk/~pmh/ART/Type.html)

Read the help file for more instructions and if you bung Peter a fiver you might even encourage him to develop some more of his excellent RISC OS software.

# JClean it

This is a desktop front end (or interface) for the Independent JPEG Group utilities *jpegtran* and *wrjpgcom*. It allows all operations available from these utilities to be performed by clicking and drag-and-drop rather than having to resort to the command line.

What this means in English is that *JClean* can strip all the rubbish out of JPEG images that PC applications such as *PhotoShop* include which sometimes prevent programs such as *SwiftJPEG* and *PhotoDesk* successfully loading them.

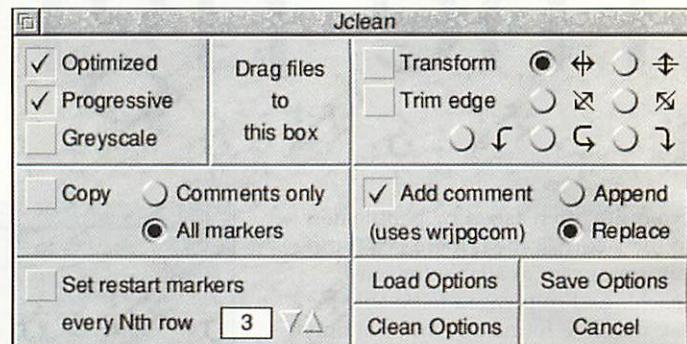
However, *JClean* is also capable of performing various simple transformations on JPEG images too, such as left/right flipping and 90 degree rotations. However, unlike using *ChangeFSI*, the output of *JClean* will be of the same quality as your original so the quality of the image won't be degraded as with many JPEG manipulation packages.

The most common use for *JClean* will be for tidying and 'optimising' JPEG images in order to make them slightly smaller and more efficient. This will probably be of most use to people who store large collections of

images, either from a digital camera or for a Web site.

Another feature of *JClean* is the ability to turn ordinary JPEGs into progressive ones. You know – the ones you sometimes see on Web sites that start off very blocky and pixely, then gradually become clearer with each pass. This gives a benefit to Web sites because you can start to see what the image will look like without waiting for the entire image to download.

As well as stripping redundant information from JPEG files, *JClean* is capable of inserting it back in. If you drag a text file to *JClean*'s panel, you can insert a comment into the image, such as a copyright or date. Indeed you can either append your own text to what's already contained within the image or you can replace the existing text with your own, so



Drop a JPEG in the box – *JClean* does the rest!

*JClean* makes a nice all round application for tidying up JPEG files and because it doesn't reconvert the image you can rest assured that you won't be losing quality by reprocessing the image.

All of *JClean*'s commands are contained within a single, straightforward window and full support is provided for Acorn's interactive help, so you can start using it straight away without having to read lots of lengthy instructions. *JClean* was written by J.David Barrow and can be downloaded from his Web site at:

[www.dacha.freeuk.com/free/](http://www.dacha.freeuk.com/free/)

## Utilities update

*CDLock* will be useful to anyone who has to maintain computers in a school or public environment. It's a simple yet effective solution to people tampering with CDRom drives. Written by Martin Longley, it will lock the CDRom drive of any computer it is installed on.

Just copy the relevant application for your machine (there are slightly different versions supplied for different CDRom drives) into your !Boot sequence and from then on, the CDRom drive can only be opened

after the correct password has been entered. That should stop crisp packets and pencil ends finding their way into the delicate electronics.

*CDLock* is available from:

[www.argonet.co.uk/users/lexicon1/](http://www.argonet.co.uk/users/lexicon1/)

*FullNames* is a nifty little RISC OS 4 utility, which I hadn't realised how cool it was until curiosity made me try it out. As RISC OS 4 owners will know, one of its big benefits is the ability to use long filenames. This is of great benefit when storing local copies of Web sites and any other files which might not necessarily truncate to ten characters.

To avoid making the Filer display look silly if you only have one file that's got a long name, RISC OS

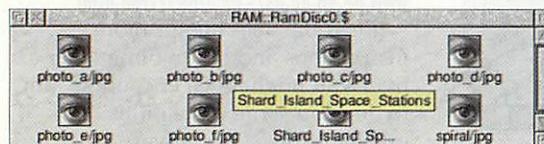
truncates the name displayed in filer windows to a sensible width and adds the text "..." on the end to signify that it's longer than what's being displayed. What *FullNames* does is to automatically display the full filename if the mouse pointer stays still for more than about a second above the file – in a similar way to RISC OS Help.

It works well and is unobtrusive, so I'd say is essential for all RISC OS 4 users. *FullNames* is written by Andrew Booker and can be downloaded from his Web site at:

[www-users.york.ac.uk/~ajb121/fnames.htm](http://www-users.york.ac.uk/~ajb121/fnames.htm)

### Contacting AU

Paul Vigay:  
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*Fullnames* in action, giving the full name, yeah

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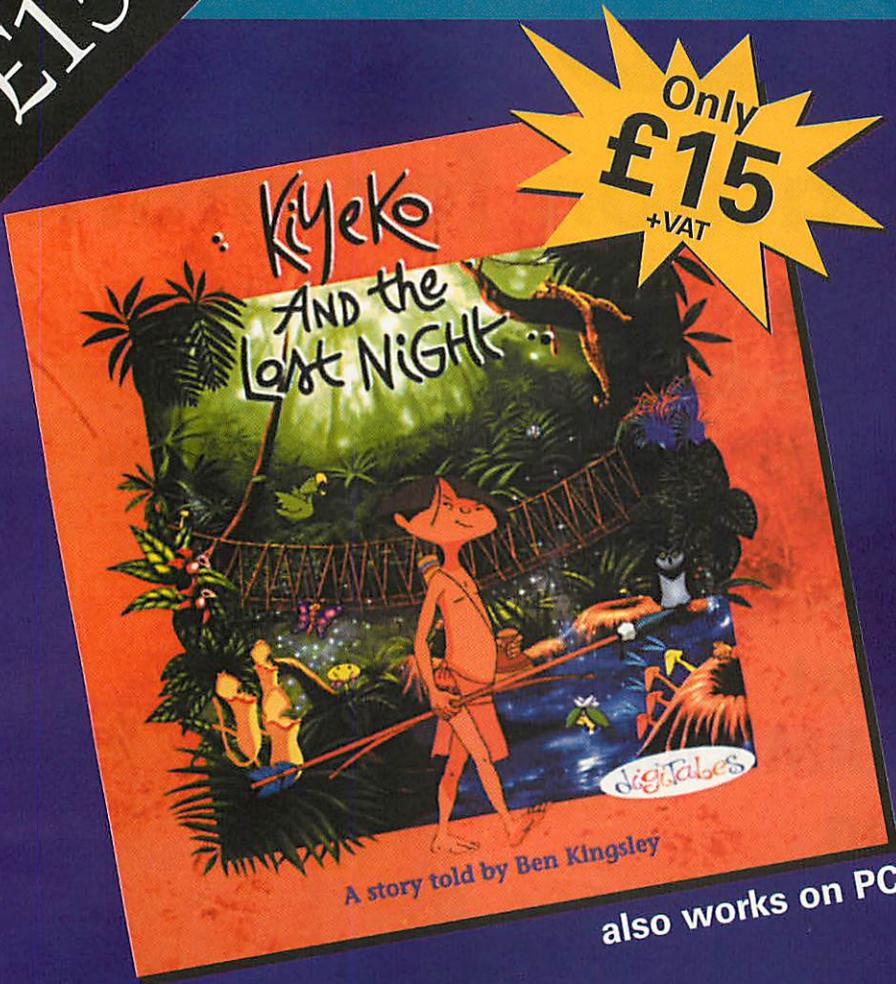
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## Five languages

- English
- French
- German
- Spanish
- Italian



# A bigger view

Following on from last month's investigation into the GIF, I thought I'd share a quick tip with you. Typically, GIFs are created with the maximum 256 colours in the palette – but the image format can be used with many less than this.

For a recent project of my own, the Woking Council Web site, I wanted to create a large watermark-style background to the pages – and I mean large in the sense of "lots of pixels". In the sense of byte-count (and therefore download time), the image had to be as small as possible. This little-used feature of the GIF amply allowed for both.

The watermark was to be an angled version of the Woking shield in a very pale grey, used both as part of the Council's logo and as a general motif around the borough. Although I wanted the shield to repeat very occasionally vertically, because it would be cropped to the left, it wasn't to repeat horizontally. And it was to be big, such that the shield would more than fill a single screenful of any page.

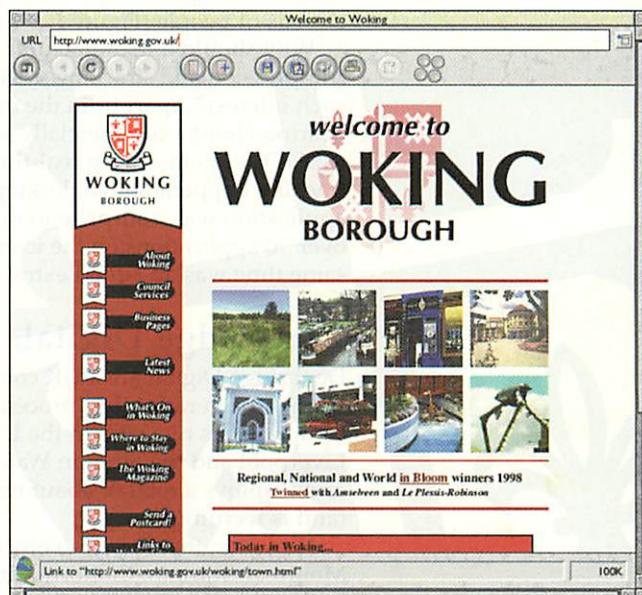
First, I created a canvas of 1200x1500 in *Photodesk*, and dropped the *ArtWorks* file of the shield onto it, placing the image carefully, and repeating the procedure such that whatever I'd cropped from the top appeared at the bottom, to allow for seamless tiling on really long pages. After converting the image to

greyscale, I saved it out as a sprite (with a filesize of, give or take, 180k) and brought it into *ImageMaster* which allows you to reduce the bits-per-pixel level of an image (the number of colours) with considerable ease.

The contrast between the pale grey of the shield and the white of the background was such that I could drop the level down to two bits per pixel – effectively three colours in total – and still maintain a reasonably smooth edge to the image. Saving this out as a GIF resulted in an image that works perfectly in all browsers I've tried it on, and a file size of only 14k.

*Netscape v3* on the PC seems to have trouble with images such as these once they've reached dimensions not far above the ones I'd used, causing a steady corruption of the window as you scroll down, but has no problems with this specific GIF.

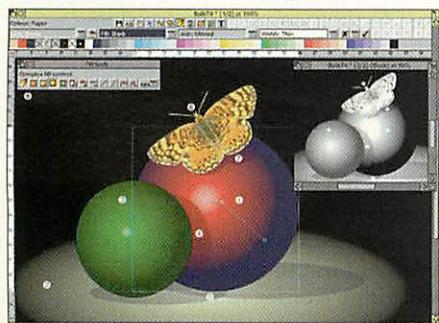
The technique can also be used to reduce the size of animated GIFs



dramatically. Where each frame in the animation uses the same, limited range of tones, *InterGIF*'s palette options dialogue box features the option to "find best x colours", which can be used to drop the palette down to fewer colours for the image as a whole.

Typically, changing this value by a few at a time won't result in any great improvement in filesize, but a reduction down to 64, or even 32 colours, can transform download times for an animation, at the expense of an amount of image quality – use with care!

## Vantage hotshots



The power of Vantage is nearly here

With the imminent release of *Vantage* application, the Cerilica Web site now contains a number of useful action screenshots, including the recent addition of complex fills.

*Vantage* can fill an object according to an editable path – radial fills are not necessarily circular anymore – with transparencies and auto-tiled sprite textures applied. Cerilica have firm plans to launch the finished release at this year's Wakefield show, with a full review appearing in *Acorn*

User imminently. The screenshots (with in-depth explanations of highlighted items), and further information about the project as it finally nears release, is available through:

<http://www.cerilica.com/>

### Contacting AU

Andrew Green:  
graphics@acornuser.com

**V**isitors to the RISC OS '99 show at Epsom last year had a rare opportunity: to see that most elusive of animals, a RISC-OS-based real-world application. The AAUG shared its stand with a company called Denbridge Digital, and Dr Colin Wright (Denbridge's Principal Researcher) demonstrated their system for eight hours at a stretch to crowds of people (Figure I).

Why should a manufacturer of radar-compression and -tracking systems attract such interest? Apart from the interest of hearing about a commercially successful RISC OS system, seeing real-time radar tracking happening in a desktop application was a surprise to many. Seeing over 50 applications on the iconbar at the same time was an added extra!

### Denbridge Digital, who?

Denbridge Digital are a UK company that specialises in radar data processing. The company has two sites in the UK, one in Liverpool and the other in Waterlooville, and employs a total of about twelve people (and is recruiting).

However, there are also offices in Montreal, Toronto, California and Virginia. In these days of globalisation, however, Denbridge Digital is now mostly owned by a Canadian company, Denbridge Capital.

Denbridge have sold radar systems to many countries round the world, including Scandinavia, Europe, the Far East and the Americas, and have even sold some in the UK! Alert readers might have noticed a question in *Acorn User* a few months ago, about RISC OS being used for air-traffic control in Hong Kong. Unfortunately, this was not correct: Denbridge have sold radar-compression systems there, but not their RISC OS radar-display systems.

These compression systems don't

process the data (for example, performing "clutter control") but they take radar information from the scanning head then compress it and send it to a control room (which can be next door or many miles away), where it is analysed, displayed and recorded. Most of their work is done in marine radar - building systems that let harbour masters keep track of ships in their harbours and shipping lanes - but they also have systems for air-traffic radar.

The data on display at Epsom showed ship movements through the Storebaelt (the sea channel between Denmark and Sweden, connecting the Baltic with the North Sea), which is very narrow but has a huge number of ships travelling through it. In this sort of setting, it is essential that the controllers can get all the information out of their radar that they can. The type of radar screen most of us think of comes from old war movies - green screens with blips on - but modern radar systems can show much more than that. Denbridge's software can even allow you to see the ships' wakes! This is related to one of

# Saili straig

Denbridge's major commercial advantages: their radar compression system.

All radar compression systems are lossy - they throw away some information in order to transmit it quickly enough. It is obviously important here which information you choose to throw away. In contrast to their competitors' systems, Denbridge's system is specifically tailored to marine radar. The algorithms they use were derived from first principles to ensure that nothing important (in this context) is thrown away. Denbridge's ancestor companies have always specialised in telecommunications and data transmission, and so they can draw on a long history of achievement in this area.

Denbridge's older radar-display systems were based on Unix computers but they now use Risc PCs as well. These are



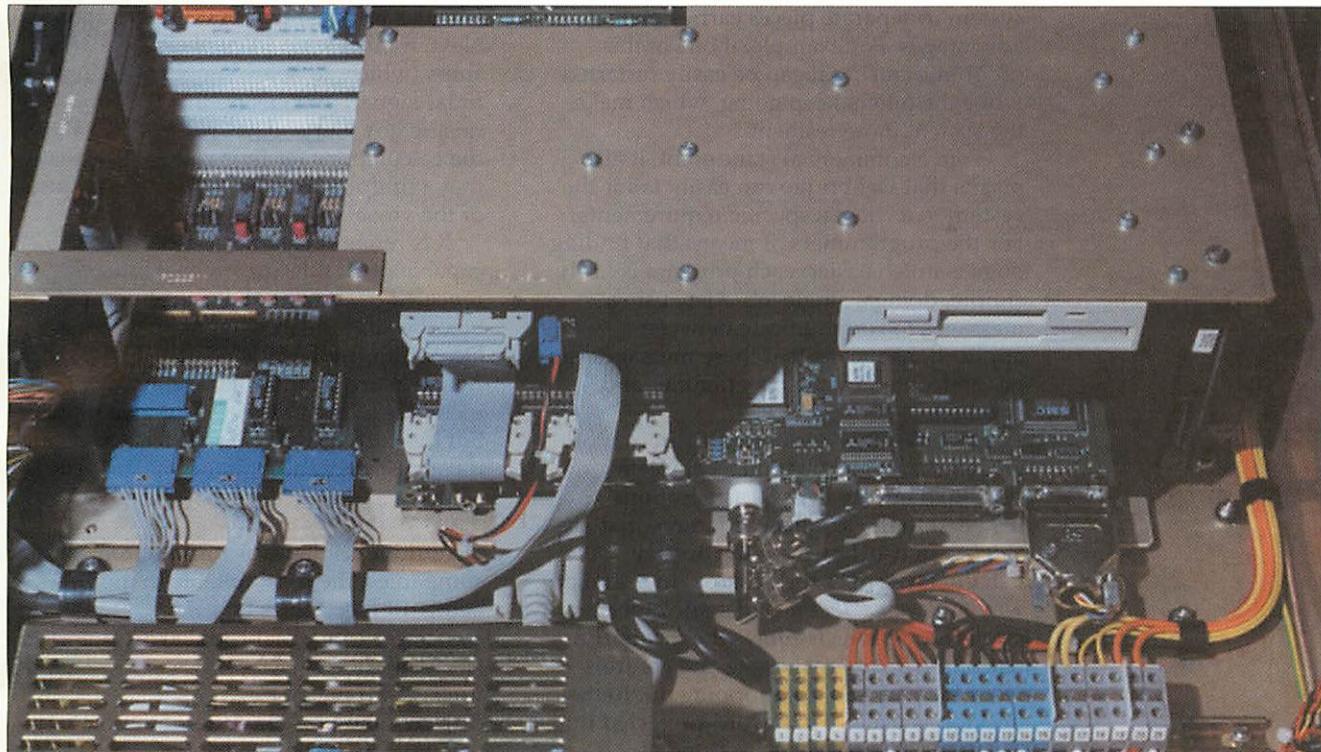


Figure II: The rack-mountable Risc PC that is Denbridge Digital's main radar-display product

# ng a ht course

*John Pettigrew switches on his radar*

repackaged in a rugged rack-mountable frame (Figure II) but all the parts are standard. Rack mounting is essential for this sort of system, as their clients want to plug the radar-tracking system into their existing control rooms, not have computers cluttering up the desks.

## What do they do?

Marine radar systems have a simple purpose: to allow the controller to know where all vessels in the area are and to help ensure that no vessel collides with any other (or with anything else,

whether that is a bridge, an oil rig or a lighthouse).

For this, Denbridge have produced a system that lets the controller zoom in and out (the screen can be anything from 512 nautical miles across to less than half a mile), pan across the area, and change the gain (with the gain high, you can even see ships' wakes; with the gain low, you see only the ships, with no noise). More importantly, the system also let you track individual ships by putting markers on them. You can then see at a glance where they are going and

how fast. Figure III shows the on-screen display and some of the possible settings.

These markers also let the controller predict when two ships (or a ship and a bridge) will intercept one another, and where. Alternatively, the controller can ask the system what course and speed two ships should set so that they do intercept one another at a specified time and place. The computer can also produce alerts when certain events are about to happen (for example, when a ship is about to leave the shipping lane, or to collide with another), which helps reduce the possibility of human error.

## How does it work?

The RISC OS applications designed by Denbridge to display radar data are modular. That is, rather than design one huge application that tries to do everything, they have many small programs (almost all of them are under 1000 lines of code) that communicate by passing messages.

This meant that they had to write their own application communication system, because RISC OS's 256-byte limit on WIMP messages was much too small. Denbridge's messaging system is, however, built on the RISC OS system. Designing the

system in separate pieces carries many advantages. For example, if one of the programs crashes it can be easily restarted while the others keep going, which makes the system more resilient.

From a commercial standpoint, it also means that Denbridge can easily tailor the system to a client's specific requirements. For the programmers, it means that finding bugs is much easier: each program is fairly simple, doing a single job. Also, using messages to communicate between applications means that these messages can be intercepted by the programmer and checked.

However, this does produce an amazingly full iconbar: in a complete system, there are over 50 applications installed to the iconbar, with more that are 'silent'. In use, however, the display usually takes over the desktop, in a similar way to *Sibelius*, *PCPro* and some other applications, which allows the maximum use of the screen real estate and controls what the user can do; dropping out to the desktop is usually password-protected in the production systems, to stop users doing it accidentally.

The system has to perform a huge amount of data processing. For each set of radar data, the computer has to convert the information into a picture for the screen, taking account of the zoom, pan and gain settings the user has chosen, while accurately interpolating any missing data at high zoom levels. At Epsom, I saw the display zoomed in to the maximum and there was no 'blockiness' to the display – these are smoothed out intelligently to give the best possible picture.

Once the radar image itself has been produced, the software has to add the outlines of the land and other features

(such as bridges) that the user has chosen. Next, it must keep track of all the marked ships (which, to it, are simply blips in the radar signal) and ensure that they are not raising any alerts. Finally, it has to perform the calculations for those markers so that they faithfully record the course and speed of the vessel.

It is remarkable that the Risc PC is capable of all this, given the frequently repeated complaint about the limits of the bus speed of the motherboard. Of course, Denbridge are keenly interested in the Imago board from Millipede, with the huge increases in speed this would give them, but the current Risc PCs are fast enough for most customers already.

## Why RISC OS?

Denbridge Digital was formed from several companies, the most notable in the UK being dB Electronics and RMSL Traffic Systems. RMSL used Unix boxes and this has continued to some extent. However, dB used Acorn machines for their early radar displays and this continues up to date.

The Unix systems have become steadily more expensive to build and maintain, and the parts have become impossible to supply. The software has thus had to be continually rewritten for different Unix and hardware variants, and the licensing has always been expensive. However, Unix systems do have electronic charting systems available.

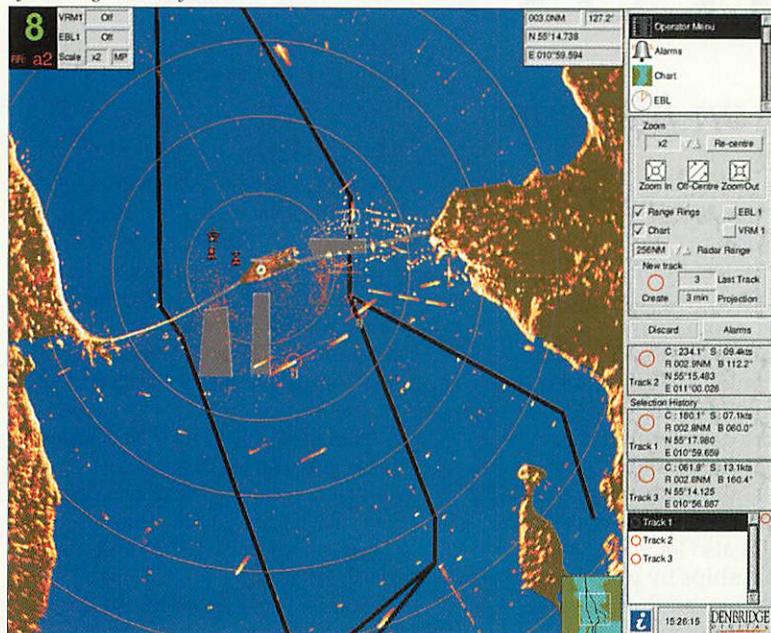
By contrast, the RISC OS systems are new, fully functional and have no licensing problems. They have found that their system is more responsive. However, some features are not yet available on the RISC OS version, including full electronic charts. Another major reason for using RISC OS is that it is feature-rich, stable, small, powerful and fast.

Denbridge's new RISC OS system contains 60,000 lines of code (BASIC, C and the traditional, lovingly hand-crafted, assembler). The Unix-based system contains 750,000 lines of C++. This much more compact code is an obvious example for a company that needs to keep development going.

## Success!

Every commercially successful business has to do two things: make something that people need and supply it to them in a form that they will buy. Denbridge have found their niche in marine radar systems, drawing on their history of achievement in similar areas. Using RISC OS computers gives them many advantages by providing a stable, mature and easy to use system that they can build on and supply to customers. Long may they continue.

Figure III: The display produced by Denbridge's radar systems



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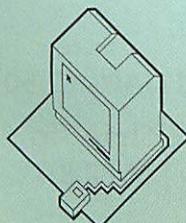
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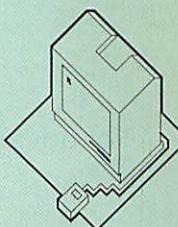
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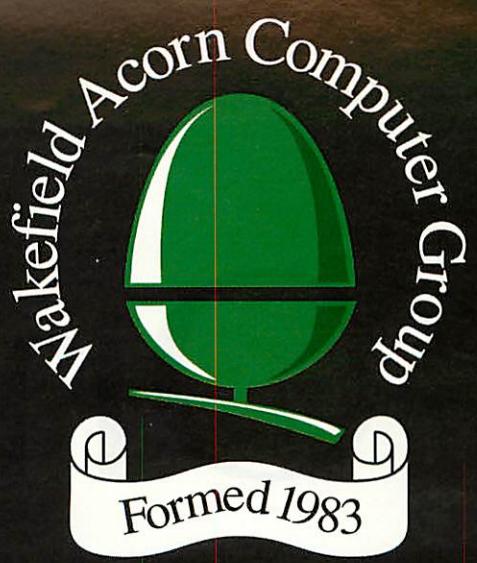
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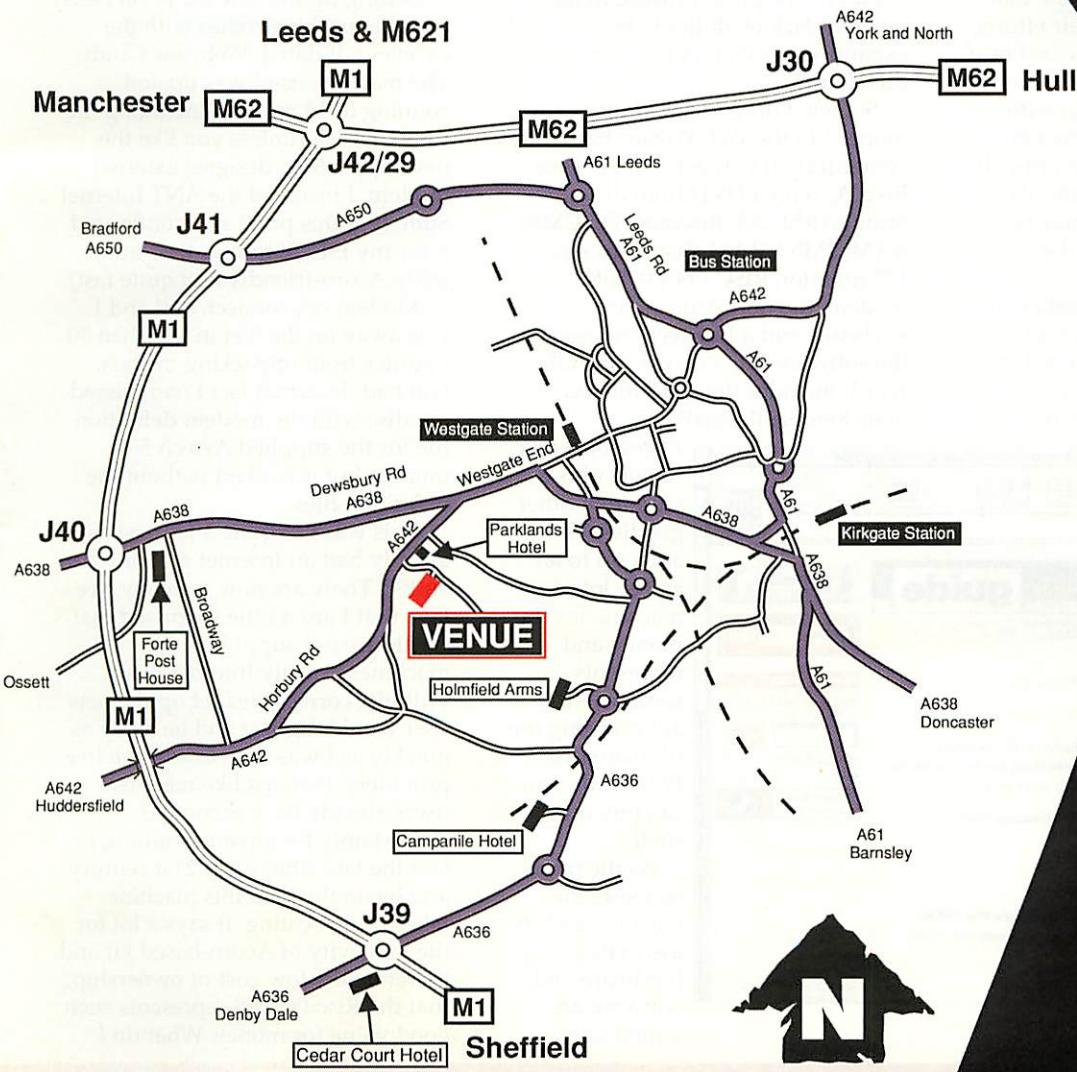


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# One of the

This is the first of three reviews of the new Acorn-based incarnations which are currently available and which have appeared since the demise of Acorn. These reviews are hands-on reviews and not based on press releases. The stipulation is that the machines supplied for review are exactly as the paying customer would receive them.

In coming months I will review machines from MicroDigital and RiscStation. These will not be comparative reviews – all three manufacturers are aiming at slightly different markets and we hope that all three will succeed in their efforts.

Comparisons would only be fair if we were comparing like with like. All three new machines ship with RISC OS 4 and while the new OS has been covered elsewhere it is difficult to separate the computer from its operating system so there may be passing reference to this in the reviews.

In this review I will be looking at what, on the surface, appears to be the "least new" of the new machines – the Risc PC233T Web Wizard from Castle Technology. I say "on the

*Mike Tomkinson starts his in-depth analysis of the RISC OS machines*

surface" because the actual box is the standard Acorn Risc PC. Having said that you have to see it again to realise how revolutionary this case actually was at the time of launch. The flip front, the easy access lid, riot shield plastic, tower or desktop configuration, additional slices, and so on. However, this is the box that Acorn were going to drop for the ill-fated Phoebe project owing to its inherent lack of ability to be expanded in other and newer directions.

So, what do you get for the money? In the Web Wizard hardware configuration you get a single slice Risc PC with a DVD Rom drive, StrongARM 233 (Revision T), 32Mb RAM, 2Mb VRAM, 8Gb hard disc, 17" monitor, RISC OS 4.0, 56K modem, the new Aura Acorn keyboard and a Logitech mouse. On the software side you get a bundle which includes the ANT Internet Suite Release II, EasiWriter

Professional and Resultz plus a variety of other goodies. This adds up to an awful lot of machine for the money and represents somewhere approaching the ultimate Risc PC bundle you can buy off the shelf.

As the name suggests the machine and its associated hardware and software are aimed fairly

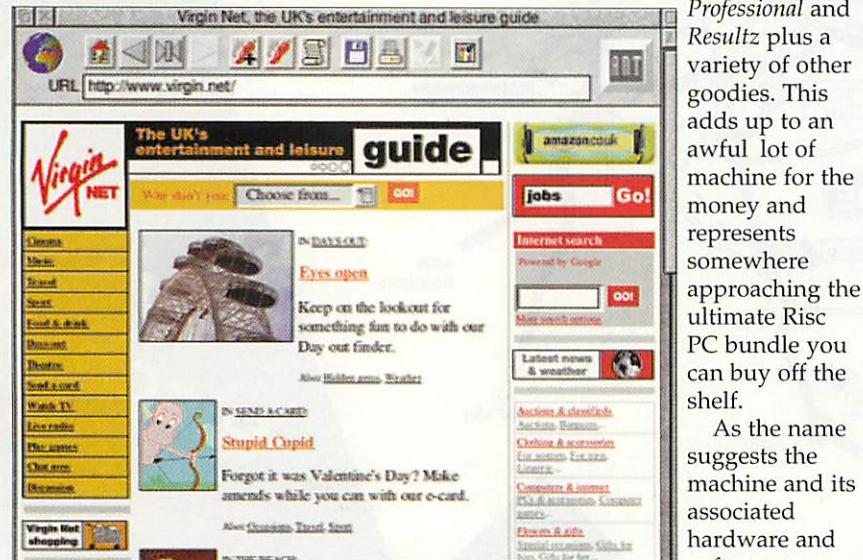
and squarely at the Internet market. With that in mind my first task/test was to see how long it took to actually get on the Net from the machine arriving. I had somewhat of a head start in that I knew what I was doing but as none of it is too difficult, (apart from getting the monitor out of the box), I considered it a fair test.

Setting up the Risc PC is very easy and the machine comes with the excellent, if dated, Welcome Guide. The machine itself was up and running in 10 minutes including the rather garish (unless you like the new Apple Mac designs) external modem. I installed the ANT Internet Suite II at this point and configured it for my ISP, (Virgin as they are fairly Acorn-friendly and quite fast).

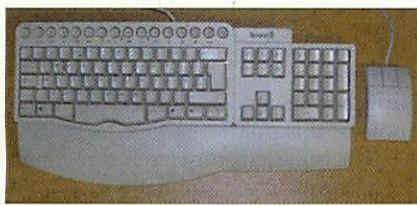
Modem on, connect, dial and I was away on the Net in less than 30 minutes from unpacking the box. Not bad. In actual fact I had missed the disc with the modem definition file for the supplied Aztech 56K modem but it worked without the definition files.

This was not quite a fair test as I already had an Internet account via an ISP. There are now so many free ISPs that I am a little surprised that Castle are not supplying the machines as truly Internet ready. With the correct files set up the new user would register and be away as quickly as I was with one of the free providers. Perhaps like me most users already have accounts?

Certainly for anyone wanting to join the late 20th/early 21st century and be on the Web this machine takes some beating. It says a lot for the longevity of Acorn-based kit and, therefore the low cost of ownership, that the Risc PC still represents such good value for money. What do I



# Best



The Aura keyboard – nice wrist-rest

mean by cost of ownership? You could buy a very high end Pentium PC for the cost of the Web Wizard. Let's face it, many people do. But in the PC world where machines go from "State of the Art" to "State of the Ark" in about six months, you would need to spend more money upgrading the hardware, the operating system and the software.

Hence the initial lower cost of purchase would quickly translate into a high cost of ownership. Too many schools are discovering this lesson with their short-sighted Governors helping them into a situation where ICT is practically a capital expenditure every year.

To give another example: I installed my copy of *Impression Publisher* onto the new machine – Version 4.13 (10th December 1996). It worked perfectly and I produced this review on it. No need to have an expensive upgrade – perfect backwards compatibility. Try saying that about any PC you know. Among the bundled software is an *Ovation Pro* demo and I would personally recommend that anyone buying the machine considers upgrading to this DTP package as it is still being developed and supported by David Pilling and between them *Ovation Pro* and *Easiwriter* make *Impression* seem very dated.

The 17" monitor which came with the review machine was a crystal-clear Iiyama S7000JTI. Do not be

tempted to go for a smaller monitor – size matters.

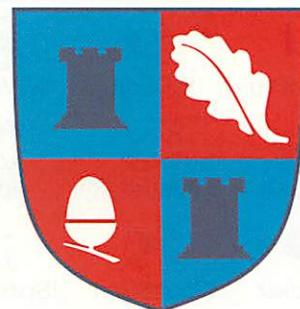
The StrongARM processor was always fast and on this machine is even faster. Programs load almost instantly – you rarely see the egg-timer. That being said the lack of a native Floating Point Accelerator is still a problem on all Acorns except the A7000+. It is one of the reasons I have stuck with my A7000+ despite its even worse problems with extensibility. I did not give the machine any extensive rendering or number work to do and that tends to be where the lack of FPA shows itself most.

The Aura keyboard is a delight to use and has a thoroughly modern look to it. If you install the new *AcornKey* driver supplied with the keyboard it enables a number of hot keys alongside the function keys. Among these is a WWW key which launches *Browse* or *Fresco* and a DOS key which launches the PC card if fitted or a Task Window if not. An excellent keyboard with a range of new features – it's almost worth buying the bundle just for the keyboard.

The Web Wizard does not come with a PC card although even this could not help make use of the installed DVD drive. On the Web



The Aztech modem has the radical iMac colouring



Wizard as supplied this is simply used as a standard CD reader. The unit is not a tray loader but one where the CD is inserted into a slot and then the CD appears to be swallowed.

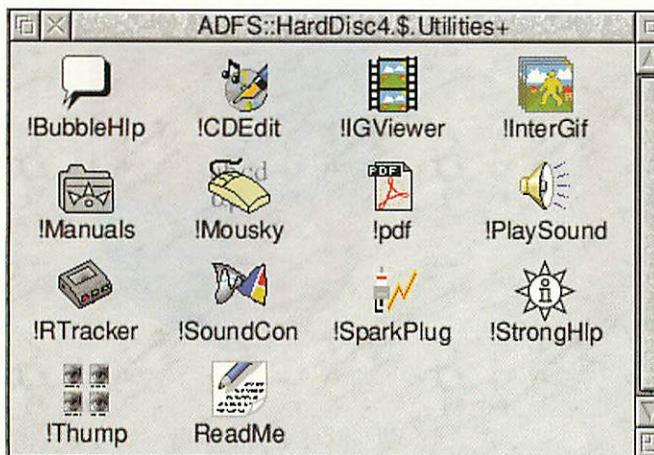
Nice and neat but once again the lack of native RISC OS DVD support places users of the machine at a disadvantage compared to PC users. Naturally this would be the same case on any Acorn machine with a DVD drive fitted and the question has to be asked why bother fitting a DVD drive at unless it is cheaper than an equivalent CD ROM unit?

So that's just about it for the hardware – all very functional, tried and tested. Rock-solid and bulletproof it puts any PC box to shame by its sheer robustness and innovative design. It is easy to get into and therefore upgrade, easily expandable by the addition of an extra slice and much sought after as the thriving secondhand market shows. Imagine a secondhand market in PCs except perhaps as door stops.

## And the software?

I said this was not going to be a RISC OS 4 review but after all it is the operating system. The version fitted on the Web Wizard I reviewed was the 4.02 version. In operation it was very solid and I never had a crash. Given that my PC which sat just behind me during the review period crashes more times per day than the average Parisian taxi driver on a Bank Holiday weekend that's saying something.

I get the impression from the newsgroups that some people have suffered a little with RISC OS 4 but mine seemed fine for the purposes for which I was using it. As I have mentioned the machine comes with the old printed Risc PC Welcome Guide but it also comes with a printed Addendum covering RISC



Web Wizard utilities – some unusual suspects

OS 4 and how it differs from previous versions. This is well worth a read as RISC OS 4 is just different enough to give an experienced RISC OS 3.7 user trouble.

On the hard drive is the software manual for RISC OS 3.7; the Internet User Guide; the OmniClient User Guide and the TimeCode User Guide. Plenty of good night time reading to be sure.

Much of the rest of the software was standard stuff that any user of Acorns would recognise on any machine produced in the last few years. Some, like the Images slideshow, are quite effective in showing off the power and versatility of the machine.

Others should be dropped like a brick as they do nothing for RISC OS or the Risc PC, whatever mode you are in and whatever monitor you use. My personal hate is the Video sequences which do nothing for the machine and look decidedly dated. The raft, lion fish, birds and shuttle launch should be binned unless I am missing the point somewhere along the way.

At this point, while writing the review, my 12 year old son managed to get on the Web Wizard. His verdict was a typically understated: "quite good Dad". Praise indeed. While discussing the machine he did make a comment which rather sums up the problems of anyone bringing a "new" Acorn or RISC OS based machine to the market. He said that he did not realise that Acorn were still producing machines.

When I told him they were not but others were he was pleasantly surprised. It's the old problem – excellent computers, with world beating innovation but marketing is the key. It was good to see that Castle and others made full use of

such shows as BETT this year. Let's face it if you can sell Apples based on an innovative case design you should be able to sell RISC OS if it were packaged in shoe box. Well, not quite but you get the point.

The bundled software

includes the *Resultz* spreadsheet from Colton Software. This comes with a full software-based manual and it was good to see it included. Personally, I would have preferred *PipeDream 4.5* as that would have given a degree of integration rather than a separate spreadsheet, word processor. This is a personal thing as I have always liked *Pipedream* where I imagine plenty of others must dislike it as quirky.

It is in the area of software to supply on a new machine that all three new manufacturers will have most difficulty. There is not enough that is new. I may be able to put a six-year-old copy of Impression on the computer but, in truth, it looks like a six-year-old program. Looks are everything to a new user. They expect to see what is available on other platforms.

Naturally no software house is going to produce for a platform which they perceive to be dying and it is to the credit of Castle and others that the hardware manufacturers have broken the vicious spiral of decline. Obviously I should also mention RISCOS Ltd for bringing RISC OS 4 to the market at this point.

I know at least one of the new hardware producers has it in mind to re-vamp the look of existing programs by the addition of new "skins". This would make the programs at least look new. Not a bad idea really as the underlying programs are still very sound but it does not solve the overall problem of a lack of new software.

### The bottom line

We are getting very near to the bottom line on this machine. As I have said it's primary function is Internet access – hence the modem and ANT *Internet Suite* bundle. You would be hard-pressed to achieve

this aim with any other machine on or coming to the market if you required a standalone machine.

On top of that you get the most tested and tried of all solutions – a Risc PC with all that it means. This includes that ability to run PC programs natively with the addition of PC card. Naturally it can also be networked with the addition of a network card but I would be tempted to look elsewhere if this was what I wanted the machine for.

The StrongARM processor, large hard drive, excellent monitor and keyboard, robust OS and good modem add up to an excellent package representing good value and a low cost of ownership as already mentioned. This is worth re-iterating: the machine will outlast any PC on the market and cost you less in upgrades. Schools take very careful note of this point.

The bundled software is something of a "curate's egg" in that it is good in parts. Perhaps, apart from the ANT Suite, that is the problem – it is not integrated enough for my taste. So be it. That is part of the very short downside to RISC OS-based ownership.

The major downside has to be the cost of purchase. Put simply this machine is very expensive at £1149 plus VAT or £1350 in real money. Given the inclusion of questionable items like a DVD drive would it not be possible to reduce the cost to the sub-£1000 mark?

I have a personal criteria when reviewing anything, software or hardware. I ask myself the question: when it comes time for the courier to come and pick up the computer am I glad to see the back of it?

The answer in the case of the Risc PC233T Web Wizard was quite simple. The courier would have a harder time getting it out of my front door than a bailiff in Bootle. That's how unhappy I would be to see it go.

**END**

### Product details

Product:	Risc PC 233T "Web Wizard"
Price:	£1099 + VAT, plus delivery (£11 + VAT)
Supplier:	Castle Technology, Ore Trading Estate, Woodbridge Road, Framlingham, Suffolk IP13 9LL
Tel:	01728 723200
Fax:	0800 783 9638 (freefax)
E-mail:	acorn@castle.org.uk
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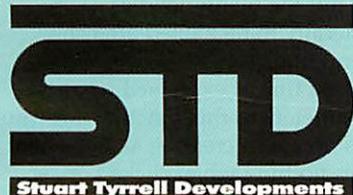
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**A** large part of *OvationPro*'s flexibility lies in its scripting language (which I'll call OPSL after this, for *OvPro* Script Language). This can be used to create macros that carry out simple functions, to change the menu structure of the main program and to extend or modify *OvPro*'s functioning.

In the first of these articles, I introduced applets and showed their basic structure. In the second, I showed you how applets can use their own windows and also detect and modify the attributes of the text. In this final article in the series, I'll introduce some of the commands OPSL provides for handling external files and for creating and modifying menus.

### Inserter

The demonstration applet this month is called *Inserter*. There is an abbreviated listing as with last month's with all of the comments and some of the more boring functions removed to save space. The applet itself is, of course, on the *Acorn User* Web site and will also be on the next cover CD. This is copiously commented so it should be easy to work out what's doing what.

This applet provides a new menu option on the *Misc->Insert* menu (Figure I). This new option opens a submenu with various text entries. Clicking on an entry will type the text at the cursor. At the bottom of the menu is a writable entry that allows you to add entries to the menu. The *Inserter* menu can also be opened from a button on the button bar.

### What do we need?

Figure II shows the directory structure of the *Inserter* applet. This is the same as the *Pointless* applet from the first article except for two extra files in the *AResources* directory. The *buttons22* file serves the same

# Expan

# Ova

*John Pettigrew  
orders from  
the menu*

function as last time – it stores a sprite that is used for the button for this applet. The *Entries* file contains the text that is used to create the menu.

In addition to the ordinary setting up that all applets have to do, *Inserter* has to read its *Entries* file when it starts up, create a menu from that information and attach the menu to the correct standard menu (and also to a button, for ease of use). When the user selects an entry on the menu, the applet must either type the text at the cursor or, if it's the writable entry, add the text to the bottom of the menu for future insertion. Finally, because the menu can change during use, the applet must save the menu data back to its file when *OvPro* quits.

### Starting up

The main function (lines 67–82) should be familiar: setting up a macro (line 81) and the associated online help (lines 70, 71), initialising and registering event handlers. However, there are a few differences. The first is that, when we create a menu entry, we aren't doing so in the *Applets* menu but in the *Misc->Insert* menu.

To do this, we use the same command as last time (*addentry\_menu()*) but, rather than passing the variable *script\_handle*, we pass *insert\_handle*. These are both *OvPro* variables that it uses to

refer to its various menus. Unfortunately, there doesn't seem to be a list of what all these variables are but the menu handles seem generally to be named after the menu title.

Last time, I explained what the parameters to this function are. Thus, this time, I'm creating an entry that does nothing when clicked on, is plain (no flags are set), has a submenu and has no keyboard shortcut, and has the text in the *INSERTER\_00* token as its text.

Lines 74–79 are concerned with creating the menu. The main function is run once by *OvPro*, when it first starts up. Thus, we need to set up a variable so that the applet can find the *Entries* file. Lines 74–76 translate the file alias set up by *OvPro* (*<OvationPro\$AppletsDir>*) into a full canonical path (something like *adfs:4.\$Apps.OvPro!OvPro.Applets*), then adds on the fixed portion relative to the *Applets* directory. Again, the C-like syntax of OPSL allows this to be done simply using the '=' operator. This adds whatever comes after the sign to whatever came before it.

Next, we need to create the menu using the *create\_menu()* command, which returns an integer that you can use to refer to this menu afterwards. We then call a separate function to read the *Entries* file and to convert the entries into a menu structure. Finally, we need to register

Ovation Pro	Misc	Insert	Inserter
File	Spellcheck	Chapter number	Hello
Edit	Characters... F11	Page number ^N	Goodbye
View	Insert	Date ^D	the
Text	Preferences... ^P	Active date	and
Style	Edit colours...	Time	in which
Object	Macros...	New page ^P	
Page	Min memory	New line ↑Return	
Misc		Hard space	
Applets		Hard hyphen	
		Soft hyphen ^-	
		Merge tag... ^M	
		Inserter	

Figure I: The new menu structure that *Inserter* produces

# ding tionPro

an event, because we need to save the menu structure again when *OvPro* is quit.

## Reading a file

During startup, we need to create the menu structure. As explained above, a simple OPSL command is all that is needed to create the menu itself, but this would be very bare (it would have no entries at all!). To populate the menu with text to insert, we need to read the Entries file, which contains text, with one entry per line.

The *inserter\_readfile()* function (lines 23–48) first needs to open the file, using the *fileopen()* command. The first variable passed to this command is the full file path, which we set up in the main function. The second variable controls what will happen to the file we've just opened: 'r' means that the file is opened for reading but other possible values include 'w', for writing, which is used below; the *OvPro* manual contains a list of the possible values.

If the file opened successfully (line 29; *fileopen()* returns an integer handle for the file, or zero if it fails), we can read information from the file a line at a time using the *filereads()* command. This command reads the contents of a file as a string. Each time it is called, it reads the next section of the file, stopping each time it finds a newline character (ASCII 10). This is usually the easiest way to read text from a file, although there are also commands for reading a character at a time.

Using the *while* command to continue reading lines

from the file, we read a line and then add the text to the menu using the *addentry\_menu()* command, just as in the main function. All entries in this menu are set to call the same function when they are selected, the *inserter\_insert()* function. The text read from the file that we use to create the menu entries includes the trailing newline character. Thus, we have to strip this off, which is done with the *mid()* and *slen()* commands.

Each time we add a line to the menu, we increment the variable that's recording the size of the menu (*inserter\_menusize*). Once all the entries have been read and added to the menu, we need to fiddle slightly to get it right. This is because I wanted to add a dotted line at the bottom of the menu with a writable entry below it. Unfortunately, there's no way of altering entries in a menu so I needed to remove the last entry in the menu using the *rementry\_menu()* command.

Once this has been done, I recreate the entry (reusing the last value read from the file, stripping off the trailing newline again) and call a function

that sets the flags so that there is a dotted line under the entry. Next, I create a new, blank entry whose flags are set to make it writable. Finally, I need to increment the *inserter\_menusize* variable again because I've added a new entry to the menu.

If the file did not open correctly, lines 43–45 produce an error box. This will be opened as *OvPro* starts up as this function is only called then and produces a slightly more

```

1: int inserter_menu;
2: int inserter_menusize;
3: string inserter_filepath;
4:
5: void inserter_insert(int entry, int subcode)
6: {
7:     string s,r;
8:     if(entry>inserter_menusize-1) type(string_menu(insert
9:     er_menu, entry));
10:    else
11:    {
12:        r = string_menu(inserter_menu,inserter_menusize-1);
13:        rementry_menu(inserter_menu,inserter_menusize-2);
14:        s = string_menu(inserter_menu,inserter_menusize-2);
15:        addentry_menu(inserter_menu,"inserter_insert","");
16:        inserter_dotted(".");
17:        addentry_menu(inserter_menu,"inserter_insert","");
18:        inserter_writable(".");
19:        inserter_menusize += 1;
20:    }
21:    return(subcode);
22: }
23:
24: void inserter_readfile()
25: {
26:     int handle;
27:     string s;
28:     inserter_menusize = 0;
29:     handle = fileopen(inserter_filepath,"r");
30:     if(handle)
31:     {
32:         while(filereads(s,handle))
33:         {
34:             addentry_menu(inserter_menu,"inserter_insert","");
35:             s += mid(s,0,slen(s)-1);
36:             inserter_menusize += 1;
37:         }
38:         rementry_menu(inserter_menu, (inserter_menusize-1));
39:         addentry_menu(inserter_menu,"inserter_insert","");
40:         inserter_writable(".");
41:         inserter_menusize += 1;
42:     }
43:     else
44:     {
45:         s = "(INSERTER_02)";
46:         translate(s);
47:         errorbox(s);
48:     }
49:     handle = fileclose(handle);
50:
51: void inserter_close(int user)
52: {
53:     int i = 0;
54:     int handle;
55:     string s = "";
56:     while(i < inserter_menusize-1) s += string_menu(inser
57:     ter_menu, i++) + char(10);
58:     handle = fileopen(inserter_filepath, "u");
59:     if(handle) i = filewritestr(s, handle);
60:     else
61:     {
62:         s = "(INSERTER_02)";
63:         translate(s);
64:         errorbox(s);
65:     }
66:     handle = fileclose(handle);
67:
68: void main(void)
69: {
70:     int temp;
71:     string help = "(INSERTER_01)";
72:     translate(help);
73:     script_menu_initialise();
74:     addentry_menu(insert_handle,".","inserter_submenu",
75:     ",(INSERTER_03)");
76:     inserter_filepath = "OvationProAppletsDir";
77:     temp = getenvs(inserter_filepath);
78:     inserter_filepath += "Inserter/AResources/Entries";
79:     inserter_menu = create_menu("Inserter");
80:     inserter_readfile();
81:     addmenuhandler(0x004, 0, "inserter_close");
82:     if(defmacro("inserter") == -1) defmacro(12, "inser
83:     ter", "(inserter_opnmenu0)", "inserter", help);
84: }

```

The reduced listing of the Inserter applet's Library file

Key: functions, brown; numbers, red; variables, green; strings, blue; commands, purple.

The string command is coloured green by Zap rather than purple like int because it's not a C declaration – the C mode for Zap works well for OPSL except for occasional glitches like this.

informative error than 'Type 5' if this problem arises. The text of the error message is stored in the Messages file in token *INSERTER\_02*.

The last action of this function is to close the file that it opened. This is important as leaving files open can cause all sorts of problems for other programs, and would make it difficult for us to open it later to write the final menu structure.

## Closing down

Logically, it makes sense now to look at what happens when *OvPro* closes down (*inserter\_close()*; lines 50–65). Essentially, this is the reverse of the

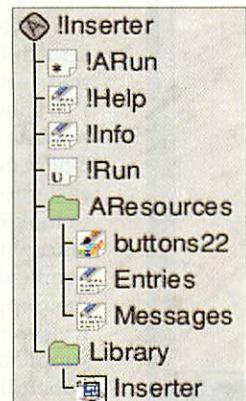


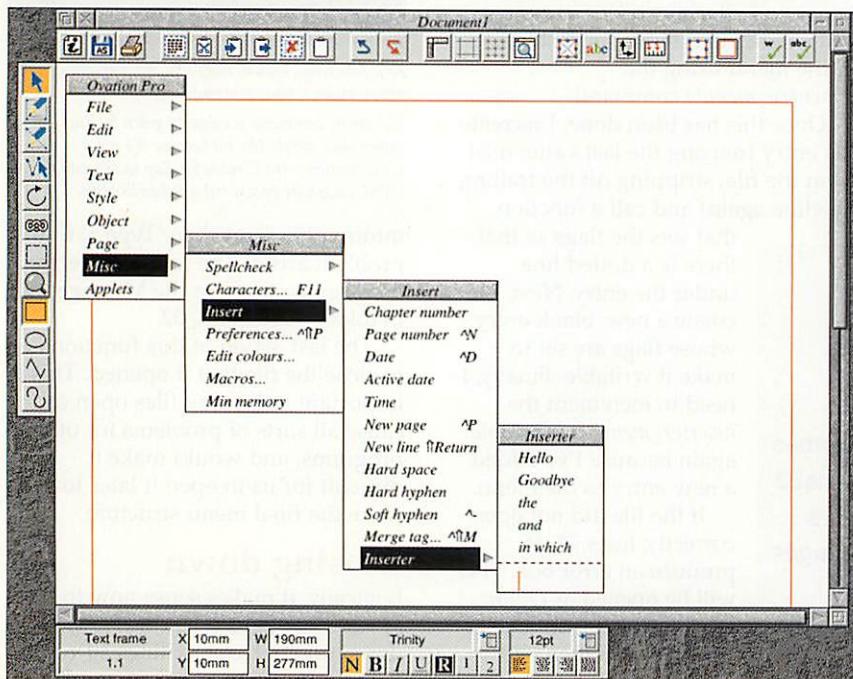
Figure II: The directory structure of the Inserter applet

*inserter\_fileread()* function: read the contents of the menu then write that information to a file. The *fileopen()* command is used to open the file, this time using the 'w' parameter to tell *OvPro* that we're going to be writing to it.

Line 55 reads all the entries from the menu (while *i* is less than the number of entries) and adds them onto the end of the string *s* (which is initially blank). Each time text is added, we also add an ASCII 10 (newline) to the end to separate the entries. This process depends on the *string\_menu()* command, which returns the text stored in a menu entry, which is indicated by passing the menu handle and entry number to the function.

This makes use again of C syntax: to make this a loop, it is necessary to increment the variable *i* each time the loop is executed. In BASIC, you'd have to insert an extra line to do this but C lets you shortcut it. In the *string\_menu()* command, we pass the menu handle but the second parameter is '*i++*'. This means 'use variable *i* and then add 1 to it'. It is also possible to use '*++i*', which means 'add 1 to *i* and then use it', and there are also equivalent subtraction operators.

Once we've built a string that contains all the menu entries, we need to write this to the file. Because we only need to write a single string, this is rather easier than the reading. If the file has opened successfully, we use *filewrites()* to write our string to the file pointed to by handle. If not (for example *OvPro* is installed on a read-



## Menu editing in OPSL

OPSL makes creating menus very easy but it isn't so easy to alter existing menus – you can delete entries but not change them. For example, you can't change the text on an entry easily, nor change the function that is called for that entry when the menu is opened. The latter is especially tricky. It means that, if you want an entry to change state depending on the situation – such as ticking/unticking, adding or removing underlines and so on – you have to write detailed functions to control it.

In this applet, I took a different tack, deleting and recreating entries depending on the situation. However, if you wanted to insert entries in the middle of a menu (for example, to keep the entries on the Inserter menu in alphabetical order) you could use the *insertentry\_menu()* command. However, this seems to have a slight problem, in that all the entries lower down the menu will lose their flags (the menu loses all the underlines and so on). Hopefully these problems will be addressed in future.

only disc), we raise an error in the same way as before. Lastly, we close our file.

## Making it work

So far, we've got an applet that reads a file to create a menu, then reads a menu to write a file. However, it still needs to do something between starting up and quitting. The function that does the main work of the applet is *inserter\_insert()* (lines 5-21) which is called whenever an entry in Inserter's menu is selected.

If the entry is not the last one (it's a piece of text that the user wants to insert) the function simply reads the menu entry using *string\_menu()* as above and writes this value at the cursor using *type()*. If not (the user has selected the writable entry) we need to read the value and add it to the bottom of the menu.

However, the bottom entry is the one with the dotted line under it and there is no easy way to change the flags of existing menu entries. Thus,

we need to delete the last two entries in the menu (the writable entry and the underlined one), remembering their contents. Then, we need to create two new entries in the same order, with the second one underlined. Finally, we need to create a new writable entry.

Lines 11-18 show how this is done, using two string variables to store the values read from the menu with *string\_menu()*, removing the two entries and adding on three new ones. We also need to increment *inserter\_menusize*, because we've added an extra menu entry. This is so that the applet will know, in the *inserter\_close()* function, how many entries there are to read from the menu.

The *inserter\_insert()* function has to return an integer value (usually subcode) because that is what *OvPro* expects and so this is how the function is completed.

## Finishing up

This simple applet should hopefully show you how easy it is to create and change menus in *OvPro*. The ability to read and write text and binary-data files from OPSL scripts and applets also opens huge areas of potential for you to use, whether that's external data, as in this case, or in choices files (as the newer versions of *StylePal* have used).

I've obviously only been able to scratch the surface of the possible in these articles. However, I hope that I've shown that it's not terribly hard to write an applet and it can make *OvPro* even more powerful and easier to use. The best way to learn is to look inside some existing applets. Start with the shorter ones; some people do put plenty of comments in their applets but most aren't terribly well commented. The two I've supplied with these articles will hopefully help. There are also some articles on the subject on the *OvPro* Web site.



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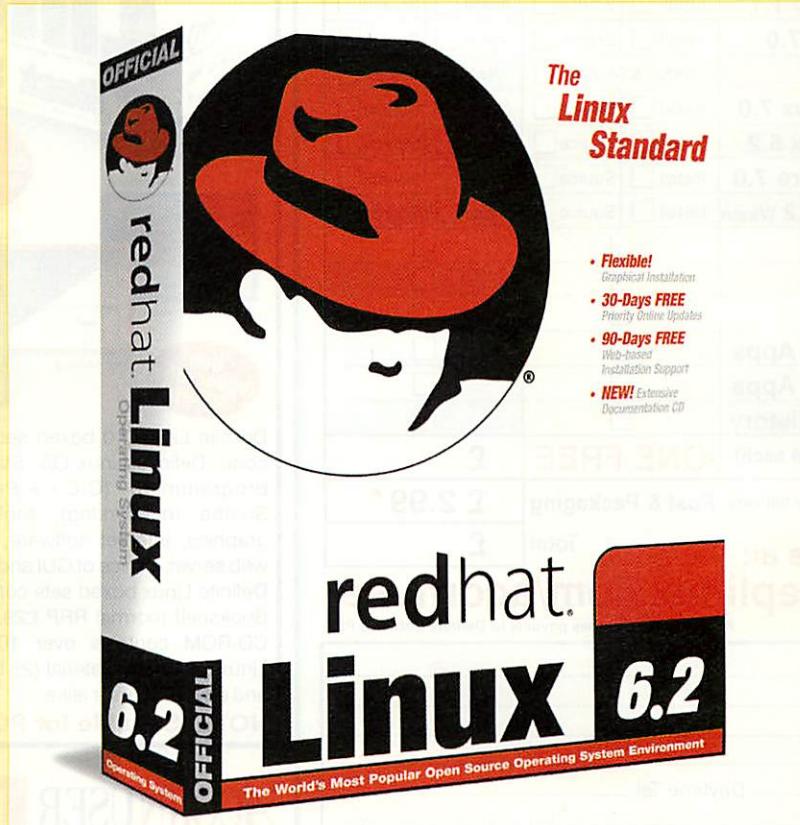
Wolfenstein 3D

# Sign of good enterprise

Red Hat and Computer Associates have released Red Hat Linux Enterprise Edition featuring CA's *ARCserveIT*, a comprehensive storage management solution. This new offering is the latest in a line of collaborative efforts between the two companies.

The combination of Red Hat Linux and *ARCserveIT*, provides a comprehensive storage solution for Linux users, offering high performance, easy administration, flexibility and scalability for today's Internet infrastructure. This offering extends comprehensive storage management throughout the Linux environment with added client agent technology, tape library support and advanced tape management – and you thought tape was a thing of the past (you know I read these press releases and I wonder what pill of "blandness" the writer was on – a thousand words of noise, signifying nothing, anyway on to the important bits).

Features of the Red Hat Linux Enterprise Edition plus *ARCserveIT*: Scalable implementation, for any size environment; Customizable backup strategies; Fast and easy-to-use interface for backup, restore and device management; Support for Intel-based machines with virtually any tape or removable drive; Easy administration of local or remote servers from a single console; Management of multiple *ARCserveIT* jobs



information in a single centralized database; Support from Red Hat and CA.

Pricing for begins at \$2,995. The product will be available through CA's and Red Hat's value-added reseller channels, as well as through the [redhat.com](http://redhat.com) store, in early May.

## Another epic

Red Hat recently announced that epicRealm Inc is intending to put out more than 1,000 Red Hat Linux servers as part of its global e-commerce network excitingly named "epicRealm" – a global commerce delivery service provider.

John Ferguson President and CEO of epicRealm ([www.epicrealm.com](http://www.epicrealm.com)) said: "Red Hat's expertise in open source Internet solutions and powerful operation systems make them an ideal fit for epicRealm. Red Hat is a forward looking Internet company that shares our vision to ensure businesses thrive in the new global e-marketplace."

epicRealm's planned worldwide network of servers

enables e-business subscribers to dramatically transform and improve customers' online experiences through focused content distribution, traffic prioritization and customer interaction services. epicRealm's services include volatile content distribution, prioritization of Web traffic and content, and other site enhancement facilities aimed at improving customer loyalty.

Which is all very well (and sounds really exciting although frankly it could have come from Dilbert's random mission statement generator) but given the current lack of enthusiasm for non-profit IPOs it's debatable whether this wondrous plan will come to anything.

Giving it a fancy name doesn't make it good.





Valid from 29 April - 26 May 2000

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ALWAYS A GOOD IDEA

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See page 13

**FROM ONLY**  
£69.99  
**NEW**



**Retail Plus**  
Reliability & Consistency

### 52x IDE CD-ROM Drive

**NEW**

**FROM ONLY**  
£32.99



See page 8



### Wireless 4D Mouse

See page 3

**FROM ONLY**  
£12.55  
**NEW**



### SiS 6326 PCI 4Mb Graphics Card



**FROM ONLY**  
£19.25

See page 32

**BTC**

### 5123 Keyboard

See page 5

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## Combination Parent and Child Mouse Set

- Connected together using switchable adaptor
- 2 button child mouse, 3 button parent mouse (400dpi)
- Supplied with setup diskette
- Serial port design



order code  
**SB01305**

price each  
**£2.05**

White Stocks Last



## Fast Mouse

- 520dpi resolution and fast tracking speed
- PC99 colour connectors
- Available with PS/2 or Serial connector
- Compatible with Windows 3.1/95/98/NT



order code  
**CH75557**

Connector  
PS/2  
Serial

1-4 price each  
**£2.10** 5+  
**£1.91**

## PS/2 Mouse

Incredible Value

### Features

- Fits right and left handed users
- 420 DPI
- Supplied in colour retail box
- 1.4m cable
- 3.5" driver diskette (DOS/W3.1/W95)
- Two (PS/2) buttons with quality microswitches



order code

mouse type

1-4 price each  
5+

**CH09732** PS/2 (6 pin mini-DIN) **£3.79** 5+ **£3.73**

## PS/2 Mouse

PS/2 mouse with 2 buttons and 6-pin mini-DIN standard connection

order code  
**CH50939**

1-9 price each  
**£4.30** 10+  
**£4.20**



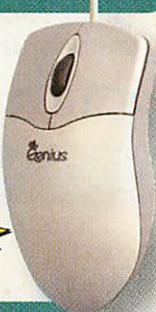
## Genius NetScroll + Mouse

- Combination PS/2 and Serial mouse
- 'Magic Roller' feature for browsing up/down, left/right on the internet or windows documents
- Zoom in/out feature in Office 97 and internet explorer
- Instant access to eight internet and windows functions
- Min. Sys. Req.: P166, Windows 3.1/95/98/NT
- Contents: Mouse, Driver Diskette, Mousemate 98 Software, PS/2 to Serial Adaptor

NEW

order code  
**CH74292**

1-4 price each  
**£5.97** 5+  
**£5.51**



## First Mouse

Reliable, high precision PC compatible 3 button mouse designed for quality and value.

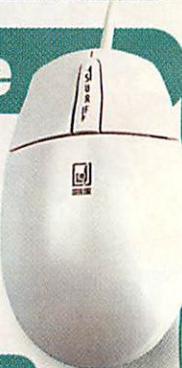
- Anatomic shape
- High precision dynamic tracking
- Serial and PS/2 combination connector
- Left or right hand use
- Compatible with all major application software including Windows 3.1/95/98

order code

**CH65160**

1-4 price each  
5+

**£6.38** 5+ **£5.89**



## AirMouse Scrolling Mouse

### Features

- 8 direction scroll button for easier scrolling
- 2 standard mouse buttons
- 1.3 metre cable
- 2 SmartButtons which access 8 preset functions including:- program switching, autoscroll, data zoom, Web page change
- PS/2 connector fitted but serial adaptor (9 pin) supplied
- Microsoft IntelliMouse compatible mode
- Windows 3.1/ 95/ 98/ NT compatible (only 2 button in DOS)

Contents AirMouse, PS/2-AT adaptor, user instructions and driver disk .

order code

**SB00822**

1-9 price each  
10+

**£7.70** 10+ **£7.20**

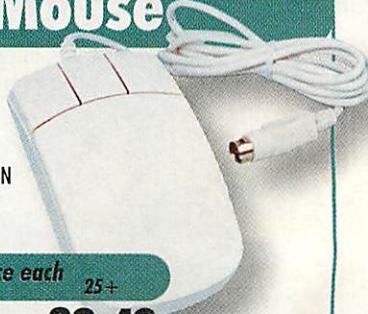
FROM ONLY

**£7.20**



## Archimedes Compatible Replacement Mouse

A three button mouse designed as a low cost replacement for existing Archimedes mice. The buttons use individual, sealed microswitches for higher reliability. Connection is via 9-way mini DIN plug with 5ft of cable.



order code  
**CH01663**

1-24 price each  
25+  
**£8.54** 25+ **£8.43**

KENSINGTON

## Mouse-in-a-Box Range

### Mouse-in-a-Box PC

- 2 button mouse
- Combination Serial and PS/2 mouse
- Windows 95/98/NT

### Mouse-in-a-Box Mac

- 1 button mouse
- ADB port connection
- System 7 and OS8 compatible

### Mouse-in-a-Box USB

- 3 button mouse including wheel
- Autoscroll feature
- MouseWorks software included
- Combination USB and PS/2 connection
- Windows 98/NT

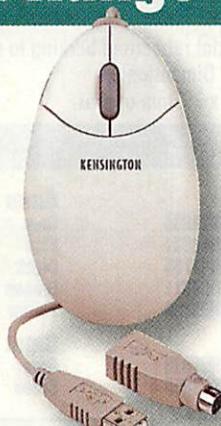
order code

mouse type

1-4 price each

5+

CH74986	PC	£10.86	£10.09
CH74988	Mac	£30.26	£27.93
CH74802	USB	£19.70	£18.11



NEW

KENSINGTON

## TurboBall

NEW

Sculptured design maintains a neutral hand position, helping to reduce strain and fatigue.

- 4 customisable buttons
- Large tracking ball for fingertip control
- Scroll wheel for speeding through long documents and web pages
- Ideal for left or right handed users
- MouseWorks software included
- Combination USB and PS/2 connector
- Requires Windows 98 or above

order code

CH74989

1-4 price each

5+

£34.58 £31.92



## Joypad

While Stocks Last

Model AJP384A

### Features

- IBM compatible
- 6 standard function/fire buttons
- 8 direction control pad
- Turbo function
- 5 foot cable with 15 pin connector
- 2 extra fire buttons on front edge (dependant on game)



ONLY  
£3.99

order code  
SB01268



## Wireless 4D Mouse

- 520dpi resolution
- Two button mouse with side scroll wheel with two top scroll wheels
- Two transmitters for wide angle (160°) operation
- Battery saving mode powers on/off automatically
- Scrolling in Windows 3.1/95/98/NT and zooming in Office 97/2000
- PC99 colour connectors
- PS/2 connector
- Contents: Mouse, Driver Diskette, 2x AAA batteries
- Compatible with Windows 3.1/95/98/NT



NEW

order code

1-4 price each

5+

CH75560 £13.80 £12.55

Competition PRO

## PC Controller Pad

- 8 way super switch
- 4 action buttons
- Turbo fire

NEW

order code  
CH74501

1-4 price each  
£4.33 £4.00



## Action Pad



- Digital pad for PCs
- 6 fire buttons
- 8-way directional thumb controller
- Auto-fire/two speed
- Slim design for easy control



order code  
CH46048

1-4 price each  
£5.32 £4.71

## KENSINGTON WebRacer Internet Mouse

- Enables quick and easy web browsing
- Scroll with touch of a finger on WebRacer's in-built touchpad
- Go immediately to your favourite web-site at the touch of one of WebRacer's six pre-sets
- Find your bookmark and favourites by pressing our unique menu button
- Get your e-mail, print, go forward, go back, reload, stop loading, all with the press of a button
- Use with or without a mouse or trackball
- 2m connecting lead
- Windows 95/98 NT



NEW

order code

1-4 price each

5+

CH74787 £33.94 £31.51

## Joystick Switch

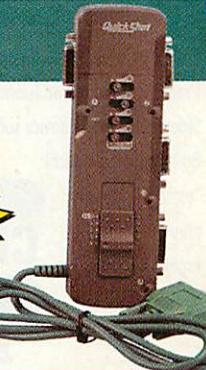
Model: Quickshot Qs-5845

### Features:

- A manual 4-way joystick switch
- Variable Turbo control for all 4 inputs
- MIDI input on port 1 only
- Suckers on rear for stability/mounting
- Active joystick LED indicator
- '2 player' mode (uses basic functions only)
- Four foot connection lead

ONLY  
£3.99

order code  
SB01403



## Playstation Scart Cable

A 1.9m lead which enables the video output from a playstation to be connected to television/video/monitor using the Scart connector.

The device also provides phono sockets for audio L + R, and video.



order code

**CH55002**



1-4 price each

**£4.11 £3.73**

## Playstation Flashfire Laser Gun and Footpedal

- Force feedback jolt action with trigger press
- Compatible with Namco shooting titles
- Footpedal included
- G-con connector included



order code

**CH74500**

1-4 price each

**£15.00 £13.85**

## Protector 2 Dual Format Automatic Light Gun

- Compatible with playstation (normal or namco guncon mode) and sega saturn
- Twin speed auto fire
- 3 bullet reload
- Auto fire and reload (machine gun mode)
- Vibration on/off with each shot
- Safe lock control
- Battery not required



order code

**CH55010**

1-4 price each

**£18.88 £17.53**

## Microsoft SideWinder Precision Pro Joystick

- Fully digital-optical technology
- Programmable button functions
- SideWinder Game device software
- Built-in digital-optical "camera" provides pinpoint accuracy
- Ergonomic Design



order code

**CH40734**

price each

**£41.80**

## Standard and Deluxe Mouse Mats

Special rubberised backing to avoid slip. Dimensions: 225 x 195mm approx.



order code

CH00835  
CH00837  
CH01706  
CH00811  
CH00812

6mm  
Grey  
Blue  
Black  
Green  
Yellow

**94p 87p**

CH00838  
CH01396

8mm  
Grey  
Green

**96p 88p**

SUPPORT  
ENGLAND  
DURING  
EURO 2000!

## Official Football Kit Mouse Mats



order code  
CH65000  
CH65085  
CH65086  
CH67057  
CH65004  
CH64993  
CH67054  
CH64992  
CH67055  
CH67060  
CH64996  
CH65001

team

Aston Villa  
Blackburn Rovers  
Bolton Wanderers  
Bradford City  
Celtic  
Chelsea  
Derby  
England  
Everton  
Fulham  
Leeds  
Liverpool

order code  
CH64991  
CH67058  
CH64995  
CH64994  
CH67059  
CH65003  
CH67053  
CH67062  
CH67056  
CH67061  
CH64999

team  
Manchester Utd  
Manchester City  
Middlesbrough  
Newcastle Utd  
Notts Forest  
Rangers  
Sheffield Wed  
Sheffield Utd  
Southampton  
Stoke City  
West Ham Utd



1-4 price each

5+

**£5.20 £4.79**

High quality mouse mats which are manufactured from non scratch, mark resistant material and cut to a kit shape.

- Dimensions (HxWxD): 265x220x5mm

**IMPORTANT** The kit designs illustrated are subject to change without notice. CPC will try to respond as quickly as possible to supply any kit design which may change.

## Official Football Crest Mouse Mats

SUPPORT  
ENGLAND  
DURING  
EURO 2000!

High quality mouse mats which are manufactured from non scratch, mark resistant material and cut to a kit shape.

- Dimensions (HxWxD): 215x210x5mm

order code

CH65007  
CH65006  
CH65005  
CH65009

team

1-4 price each  
£5.47 £5.05  
£5.47 £5.05  
£5.47 £5.05  
£5.47 £5.05



## PS/2 Extension

- Suitable for extending PS/2 devices (mouse or keyboard)
- 6-pin mini DIN plug to socket (M to F), grey in colour, 1.8m

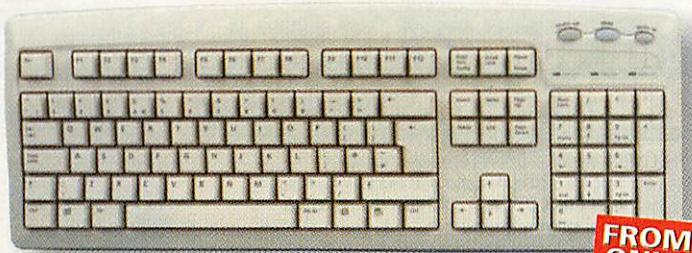
Note: This is NOT a curly lead, it is a straight extension.



order code  
**CH53299**

1-4 price each  
**£1.57** 5+  
**£1.39**

## BTC® 5123 Keyboards



- 105 adjustable keyboard stand
- PC99 Serial or PS/2 connection
- Power off, sleep, wake up buttons

**NEW** FROM ONLY  
**£4.99**

order code

mouse type

1-4 price each

**CH75649**

Serial

**£5.38**

**£4.99**

**CH75650**

PS/2

**£5.38**

**£4.99**

## PS/2 Keyboard

A standard 102/105 keyboard made by ACER - Model 6512-T9U - with a PS/2 connector.

It has adjustable feet and dimensions of (LxWxH)  
460x165x25-50mm.



order code

**SB00704**

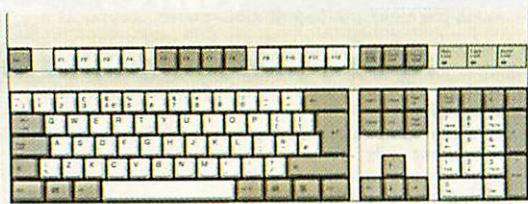
price each

**£7.20**

## Windows '95 Keyboard

ONLY

**£7.20**



A Win 95 compatible keyboard with adjustable feet (one position) and an AT connector.

order code  
**SB00821**

**ACCURATUS** Latin Exact, Precise with Care

## ACC295

## Win 95 Keyboard

A quality, standard full sized keyboard.

- Designed for Windows 95
- IBM AT and PS/2 versions available
- Enhanced 105 key keyboard
- Soft touch, silent with tactile feedback
- Highly reliable membrane contact technology



order code

**CH39789**

type

AT

1-4

**£14.05**

5+

**£9.21**

**CH39790** PS/2

**£11.94**

**£11.09**



## Easy Internet Keyboard

- Quiet, tactile keyboard with excellent response
- Detachable palm rest for improved comfort
- Internet button which launches your favourite web site or application
- PS/2 keyboard, supplied with PS/2 to AT keyboard adaptor
- Sys.Req. Win 95/98/NT 4, CD-ROM Drive



order code

**CH68718**

1-4 price each

**£18.99**

5+

**£17.54**

**CHERRY**

## G83-6105 Win 95 Keyboards



Cherry G83-6105 entry level 'soft touch' Windows 95 keyboards.

Available in both AT (5-pin DIN) and PS/2 (6-pin mini DIN) versions.

order code

**CH09852** AT (5-pin DIN)

type

1-4

**£22.26**

**£21.22**

**CH09853** PS/2 (6-pin mini DIN)

5+

## Multimedia Headset

A multimedia headset which combines a set of stereo headphones with a boom condenser microphone. An in-line volume control is included in the 1.8m cable, terminated in 3.5mm plugs.

**Technical Data**  
Frequency response 20 - 16KHz  
Impedance 32 ohm

order code

**SB01384**

1-4 price each 5+

**£4.95 £4.10**

## Multimedia Microphone

Use for Internet communication, presentations etc. Connects to any sound card or fax/modem. Ball socket allows microphone to be positioned for optimum response.

**Technical Data**

Directivity Omni-directional  
Sensitivity -62dB ±4dB (at 1kHz)  
Frequency Response 100Hz to 10kHz  
S/N Ratio >40dB (at 1kHz)  
Connection 3.5mm stereo jack plug  
Base Dimensions (LxW)105x95mm approx.  
Cable Length 2m

**Genius**

## Professional Headset

**db boeder**

A headset with boom microphone for use in multimedia, speech recognition and teleconferencing applications.



- 1.8m cable terminated in 3.5mm stereo jacks
- Padded, comfortable earphones
- Flexible arm boom microphone with windshield
- Headphones: 32Ω impedance, frequency response 18Hz-20kHz
- Uni-directional microphone, 600Ω, frequency response 100Hz-15kHz

order code

**CH53295**

1-4 price each 5+

**£9.80 £8.64**

## Multimedia Microphone

**Model: CMP101**

A circular Omni-directional multimedia condenser microphone

- Comes with holder and built-in clip
- 20Hz to 16KHz frequency response
- Lead Length 2.4 metres with a 3.5mm plug

order code

price each

**SB00836 99p**

**While Stocks Last**

## Desktop Microphone

The cable length is 2 metres and is terminated with a 3.5mm plug.

order code

price each

10+

**SB00608 £1.29 £1.05**

## Multimedia Microphone

**Model Quickshot Qs-5838**

**Features**

- Desktop design, adjustable angle
- On/off switch

**ONLY**

**£1.55**

**While Stocks Last**

order code

**SB01402**

## Jane Greenoffs Cross Stitch Pattern Creator

Create dazzling cross-stitch designs or turn your pictures into cross-stitch patterns.

- Simple to use - ideal for total beginners or experienced stitchers alike
- Contains hints and tips from Jane Greenoff
- Import a photograph or picture via any scanner or digital camera and convert it into a cross stitch chart with colours matched to your wool
- Preview designs as stitches, colour blocks or symbols on screen or as it should appear on a chosen fabric
- Automatically calculates the amount of thread needed to complete a design. This can be printed as a shopping list.
- Min. Sys. Req.: 486 or higher, 2MB HDD, 16MB RAM, 4x CD-ROM, Soundblaster or Compatible Sound Card

order code

**CH69061**

price each

**£12.78**

**OREGON SCIENTIFIC**

## Computer Internet Timer

A digital count up/down timer with a computer grey finish, making it suitable for use with computers. The right angled design allows the timer to sit on top of a PC monitor or base unit using the velcro fastener or to be desktop mounted.

- Dual display to show both session time and accumulation of session times
- Count up/down - 99hr 59min
- Accumulation memory function for adding many session times together
- Audible alarm when count reaches '0'
- Dimensions (WxHxD): 83x40x55mm

order code

**CH38063**

1-4

price each

**£8.45**

5+

**£7.95**



**FROM ONLY**

**£7.95**

## Microsoft Windows 98 Software

### Windows 98 Upgrade

Improves system performance and provides easier system diagnostics and maintenance.

Also provides easier internet browsing.

Supports the latest graphics, sound, and

multimedia technologies with easy addition of peripheral devices. Contains USB and IEEE 1394 drivers. Min. system requirements: 486DX/66MHz, 16MB RAM, 120Mb-295Mb HD, CD or DVD ROM.



### Microsoft Plus! 98

Companion upgrade for windows 98. Contains: McAfee VirusScan, Deluxe CD Player, Picture It! Express, Lose Your Marbles, Spider Solitaire, Microsoft Golf 4, Golf Lite and other enhancements.

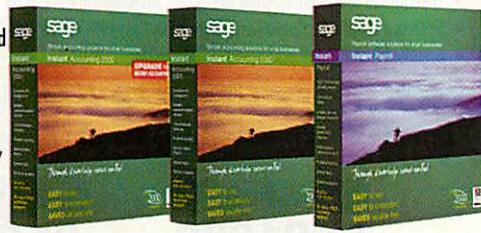
Min. system requirements: P90MHz, 16MB RAM, 100MB-150MB, CD or DVD ROM.

order code	title	price each
<b>CH51435</b>	<b>Windows 98 Upgrade</b>	<b>£79.99</b>
<b>CH54764</b>	<b>Microsoft Plus! 98</b>	<b>£37.50</b>

## SAGE Instant Accounting 2000 Software

### Instant Accounting 2000

Sage products are recommended by accountants throughout the UK for their simplicity, convenience and time-saving features. Creating new accounts, entering opening balances and monitoring the financial health of your business is all made simple. On-line library provides access to useful tips and information.



**Instant Payroll 2000** Employees' names, addresses, tax codes, and pay rates can be easily called up, and the data processed quickly and accurately. All current PAYE and National Insurance bands and rates have been pre-entered for convenience. All employees can be paid at the touch of a button with all the gross and net pay, tax and NI figures calculated automatically.

order code	title	price each
<b>CH54778</b>	<b>Accounting 2000 Upgrade</b>	<b>£44.25</b>
<b>CH54777</b>	<b>Accounting 2000 Full Version</b>	<b>£89.45</b>
<b>CH54779</b>	<b>Payroll 2000</b>	<b>£89.45</b>

## Smartmedia Cards

3.3V Smartmedia cards for digital cameras.

OLYMPUS



order code	size	price each
<b>CH61323</b>	<b>8MB</b>	<b>£25.27</b>
<b>CH61324</b>	<b>16MB</b>	<b>£42.12</b>

## QuickCam USB Camera (OEM)

A video camera which connects to the PC's USB port and allows still and video capture.

- Records videos and takes pictures. Preview a video clip or picture directly on the screen.
- Edit pictures. Save pictures that have been taken and crop, resize or enhance them later.
- Communicate with others - Video Chat. An easy-to-use communication feature that allows video communication over the Internet.
- Send video clips and pictures via the Internet. After taking a picture transmit by email.
- Place videos and pictures into documents. Move images from the preview pad directly into other Windows applications.
- Create animations. A 'wizard' allows the user to create animation or time-lapse videos.
- Adjust camera settings. Change the camera setup for optimum performance.



Supplied with a mounting base, two mounting pads and a CD-ROM containing drivers and utility software.

- In addition to taking pictures through the software interface, pictures can be taken directly by pressing the 'snapshot' button on the top of the camera.
- The camera mounts on a bracket which is designed to mount on any right-angled edge such as a monitor case or table top. The bracket is held in place by a self-adhesive pad, two of which are supplied.
- A microphone is mounted inside the camera, facilitating the recording of audio in addition to video.
- Manual privacy shutter.
- The supplied CD includes Logitech 'Camware' which is a feature packed utility for video capture, storage and manipulation.

The program also includes an extensive help facility.

Please note the following: The unit requires Windows 98 for correct operation. As this unit is an OEM version, it is NOT supplied in a retail box or with an instruction manual. The CD-ROM does have a comprehensive help file on it.

order code	1-9	price each	10+
<b>CH50940</b>		<b>£60.04</b>	<b>£55.84</b>

## OLYMPUS Camedia C-2020 Digital Zoom Camera

- Built-in 4.5cm colour TFT LCD monitor
- 12s delay timer function
- Built-in Flash
- 3x zoom for checking close up pictures
- Non-compressed TIFF images, Motion picture: QuickTime motion JPEG
- Flash modes - auto, red eye, fill in and flash off, slow synchronisation
- White balance - iESP full-auto TTL, manual (daylight, overcast, tungsten light (lamp), fluorescent light)
- Image effect - Sepia mode, black & white mode, black board mode, white board mode
- On screen information: Date and time, image quality modes, frame number, protection mark, remaining battery life
- DRAM technology for saving pictures quicker, saves time and batteries by taking shots at a fast rate
- Powered by 4xAA batteries (charger and Ni-MH batteries supplied)
- Supplied with a 3.3V 8MB Smartmedia card, 4xAA batteries and charger, PhotoAlbum 2.0 software for the PC and Mac (archives digital photographs)



### Technical Data

Imaging Element	1/2" CCD (2.11M pixel)
Computer Output Images	640x480, 1024x768, 1600x1200 pixels
Lens	6.5-19.5mm (F2-2.8)
Aperture	Wide: F2-F11; Tele: F2.8-F11
Focus Range	0.2m - (infinity)
Connectors	DC input terminal, input/output (RS232C), Video output (PAL), external flash terminal
Weight	305g
Dimensions (HxWxD)	74x108x66mm

order code	price each
<b>CH72144</b>	<b>£553.18</b>

## 40x IDE CD ROM Drive While Stocks Last

**Model:** Vintech VIN-40A

- ATAPI / IDE interface
- 40x Multiread CD ROM drive supports CD-R & CD-RW
- UDMA
- 128KB buffer
- Analogue and Digital audio output on rear panel
- Headphone socket and volume control on front panel
- Win 3.1, 95, 98, NT & OS2 compatible

**Contents:** CD drive, driver disk, audio cable and mounting screws.

order code 1-4 price each 5-9 10+  
**SB01134** £27.99 £24.99 £22.99

**Retail Plus<sup>+</sup>**  
Reliability & Quality

## 52x IDE CD-ROM Drive

- Multi-read: CD-DA, CD-ROM/XA, Photo CD
- Data transfer rate: 7800kB/s
- Ultra DMA33 compliant
- Contents: CD-ROM Drive, User Instruction and Driver Diskette, Sound Lead, Screws
- Min. Sys. Req.: 486, 16MB RAM, Windows 95/98/NT

**NEW**

order code 1-4 price each 5+  
**CH74258** £35.78 £32.99

## HITACHI GD-2500 DVD Drive

- 3rd generation DVD-ROM drive for multimedia applications
- 24x CAV (CD-ROM)
- Enhanced IDE (ATAPI) interface
- CD-R/RW disk compatible
- 16.6MB/s burst transfer rate

**Contents:** GD-2500 DVD drive, driver disk for DOS/Win 3.1 (not required for 95/98), sound lead

For full technical data see CS03936 on page 396 of CPC's Yr 2000 Catalogue

**While Stocks Last**

order code 1-3 price each 4+  
**CH50872** £87.25 £84.75

## PCMCIA CD ROM Drives

An external PCMCIA CD ROM available in two speeds either 20 or 24

**Model:** True Mobile PSCD-740

- Compatible with PCMCIA 2.1 type II or III slots
- Uses Teac drive mechanism • 512KB buffer
- Compatible with DOS, Win 3.1/ 95/ 98/ NT4.0 & OS2/Warp
- Headphone socket and volume control
- Play, Stop, Pause and skip buttons
- Powered from PCMCIA slot or external 5V DC adapter (not supplied) • Retail boxed
- Dimensions: 145 x 150 x 21mm (LxWxH) • Weight: 450g

**Contents:** CD ROM, PCMCIA lead, Audio lead 3.5/3.5mm, Manual and Driver disc

Optional Extras

20 speed CD ROM

order code

SB01370

24 speed CD ROM

SB01241

Headphones - See CPC's catalogue for full range.

1-2 price each 3+  
 £82.50 £71.99  
 £89.25



## 1.0Gb External PCMCIA Hard Drive

Ideal for use with notebook or laptop computers.

- Can be powered from the PCMCIA port, if suitable, or via an external DC adaptor (not supplied)
- Uses either a type II or III PCMCIA port
- Dim: 85 x 140 x 30mm (WxDxH)
- Compatible with Windows 3.1/95/98/NT, using PCMCIA Release 2.1, Compliant Card/Socket service

**Contents:** PCMCIA cable, External drive and carry case

order code 1-2 price each 3+  
**SB01371** £92.99 £82.50

## Delta CD-RW Recorder

**Model** Delta OME-W141

- ATAPI EIDE 20 x Read, 4 x Write, 4 x ReWrite recorder
- Uses a Ricoh CD mechanism
- Mountable in a standard 5.25" bay, Vertical/Horizontal
- Utilises Track at Once, Disk at once, Packet Write & Multisession writing modes
- Formats supported: CD-DA, CD-ROM, CD-Extra, CD-ROM XA, Photo CD, CD-I, Video CD and CD-ROM + CD-DA
- Capacity is 650Mb using a 74 minute disk
- Headphone connector on front panel and Analogue audio out on rear panel
- Software supplied : PhotoGenie, Direct CD, Easy CD Creator and DIY-RW
- Supplied in full retail packaging • 2Mb buffer



System Requirements: Pentium 100MHz(min), 32Mb RAM, Win 95/98, Win NT4.0 (pack 3)

**Contents:** CD-RW recorder, Manuals, Software, Mounting screws and Audio lead

order code price each  
**SB01236** £136.99

## i-Stor CD-RW Recorder

**Model** Wearnes i-Stor CDRW1688**Features**

- ATAPI EIDE 16 x Read, 4 x Write, 4 x ReWrite recorder
- Utilises Track at Once, Disk at once, Packet Write & Multisession writing modes
- Formats supported: CD-DA, CD-ROM, CD-Extra, CD-ROM XA, CD-I and Video CD
- Headphone connector on front panel and Analogue audio out on rear panel
- Capacity is 650Mb using a 74 minute disk
- Software supplied : NTI CD-maker
- 2Mb buffer • Supplied in full retail packaging

**System Requirements**

Pentium 100MHz(min), Win 95/98, Win NT4.0 (pack 3)

**Contents:** CD-RW recorder, manual, CD-RW blank disk and software

order code price each  
**SB01378** £164.99

## PCMCIA DVD/MPEG-2 Card

- Plays full-screen, full motion DVD/MPEG-2 video playback at 720x480 resolution
- NTSC/PAL S-video or composite TV output
- PCMCIA type II card
- Supports Dolby AC3 digital surround sound
- S-video, composite video, and 2 channel audio output
- Compatible with CSS decryption and region code
- User friendly DVD navigator
- Supports karaoke mode
- System requirements: P166 or faster, 16Mb RAM, 10Mb HDD, ZV port enabled notebook, DVD-ROM drive, Windows 95/98
- Contents: Type II PCMCIA DVD/MPEG-2 card, DVD navigator and driver diskette, TV/Audio output cable, User manual



order code  
**CH60981**

1-4 price each 5+  
**£179.84 £162.55**

## 56K Internal Modem

An internal PCI bus 56K modem.

- Supports: V90, K56Flex, V34, V32, V22, V21, V23 Data & V17, V21, V27ter Fax
- V80 (H324 video conferencing)
- Comes with Supervoice • REN 1
- Voice/Audio mode
- Full duplex speakerphone
- Sockets on rear for external Mic and speaker via 3.5mm jack. Phone and Line RJ45 sockets.

System requirements: Win '95, '98 and P150 MMX processor or greater, 16MB RAM

Contents Modem, User Instructions, Line cord and CD ROM with drivers and software.

FROM ONLY

**£20.99**



order code

**SB00710**

1-2 price each 3+  
**£24.60 £20.99**

## External 56K/V90 USB Soft Modem

Model Wellink FM-56USB-ST

- Fully 'hot swappable', powered from USB port
- Uses the SGS Thomson chipset
- Compatible with Bell 212A/103, V22/22bis/32/32bis/34/34bis, K56flex, V90
- Group III fax compatible V17, V27ter & V29
- Uses CCITT V42/MNP2-4 error correction
- Uses MNP5/V42bis data compression
- Video conferencing: H324, V80 compatible
- Comes with Supervoice Comms software (Win 98/NT4.0)
- Tone & Pulse dialling
- Dim: 65 x 33 x 130mm (WxHxD)

System Requirements: Pentium 233MMX, 32Mb RAM, USB port & Win 98 / NT5.0



ONLY

**£39.99**

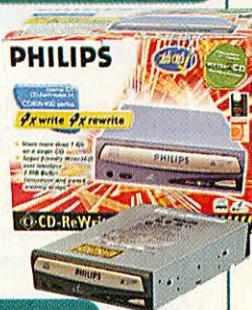
Contents Modem, software on CD/Floppy, user guide and Line cord.

order code  
**SB01368**

## PHILIPS 4x4x32 EIDE CD-ReWritable Drive

Model PCRW 404K

- 4x Write, 4x Rewrite, 32x Read
- Write speed 1x: 150kB/s, 2x: 300kB/s, 4x: 600kB/s
- Rewrite speed 4x: 600kB/s • Read speed 32x: 4.8MB/s
- Access time: 11.5ms • Data buffer: 2MB
- Exclusive metallic design
- Supplied with Write2CD recording software with CeQuadrat packet writing (English, French, German, Spanish, Italian)
- Supports all major CD formats (Not DVD)
- Horizontal or vertical mounting
- Contents CD RW Drive, User manual, Drivers disk, Sound card lead, IDE lead, 1x Blank Philips CD-R74 and CD-RW74 disc, Screws
- System requirements Win 95/98/NT, P75, 16MB RAM, 12MB HDD



order code  
**CH66340** 1-4 price each 5+  
**£203.85 £189.29**

## 56K Internal Modem

FROM ONLY

**£35.99**



### Features

- 56K Data/Fax and Voice, inc Full Duplex speakerphone, internal modem
- Supports Data modes - K56Plus/K56Flex (56Kbps), V34, V32/32bis, V22/22bis, V21, V23
- V24 MNP2-4 error control and V42bis
- MNP5 data compression
- Compatible with Hayes AT command set
- Fax Class 1 command set
- Group III send/receive up to 14,400 bps
- Supports fax modes V17, V27ter, V29, V21
- Sockets on rear for mic in and speaker out using 3.5mm sockets • Onboard speaker
- Line in and telephone out sockets using RJ11 • Detects if Data/Fax or Voice incoming call
- Answerphone facility via software • REN is 1

Contents Modem, line cord, software - 'Supervoice' on CD ROM & Win 95/98 & NT4 drivers supplied on floppy, user guide

Technical Data System requirements: IBM compatible 386 or higher, with free 16 bit ISA slot. Win 3.1/3.11 or Win 95

order code  
**SB00578** 1-4 price each 5+  
**£39.99 £35.99**

## PC Vision Kit

The hardware in this kit when combined with the award winning video conferencing software 'Vocaltec-Internet Phone 4.0' will allow long-distance voice and video communication for the cost of an Internet connection.

### Features

- Supports full screen or a scaleable window
- Still or Full Motion video capture
- External composite and s-video inputs
- Supports colour depth of 15,16,24 or 32 bit
- Adjustable brightness, contrast, saturation and hue
- Free PCI slot required, PnP supported
- Win 95 drivers
- No VGA feature connector required
- Camera spec:  
Pixels - 27,000  
Lens - 4mm, F3.8, fixed iris  
Focusing - manual  
Object distance - 10mm to infinity



ONLY

**£61.99**

While Stocks Last

Contents Vid-com card, Camera, Mic and software

order code  
**SB01326**

## External 56K Voice/Data/Fax Modem

**Model** Wellink FM-56FT

- Full Duplex external Voice/Data/Fax Modem
- Speakerphone facilities using external speaker and mic
- Compatible with Bell 212A/103, V22/22bis/32/32bis/34/34bis
- Uses CCITT V42/MNP2 - 4 error correction
- Uses MNP5/V42bis data compression
- Tone & Pulse dialling
- Comes with Supervoice Comms software (Win 3.1/95/98/NT4.0)
- Dim: 125 x 45 x 230mm (WxHxD)

**Contents** Modem, software on CD, Ext PSU 9V ac @ 800mA, 9/25 way serial lead and Line cord.



ONLY  
£36.99

order code

**SB01369**

1-4 price each

£39.99 £36.99

5+

## External 56K Modem

ONLY

£42.50



An external 56K auto-detect K5Flex/V90 modem allowing users to add data facilities to a PC with no free internal slots, or where portability of a modem is required between machines.

**Model** H52PT-3020

- Error correction: V42, MNP 2-4.
- Compatible with the following protocols: V34, V32bis, V22bis, V22A/B, V23, V21, Bell 212A, Bell 103.
- Fax protocols: Group 3 send & receive. V17, V29, V27ter, V21. Command set 1 & 2.
- V80 and Rockwell Video Ready Synchronous access modes supported. • Data compression: V42bis, MNP 5.
- Power switch on rear.
- Redial, pulse/tone dialling, Autoanswer, Hayes compatible.
- AudioSpan (Simultaneous Audio/Voice/Data: SAVD) compatible.
- Front panel LEDs and sockets for Mic and Speaker. • REN 1. • Full duplex speakerphone mode.
- Sockets on rear for Serial connection (25-way D), DC power, telephone line and phone.
- Dimensions: 175 x 125 x 28mm (DxWxH).

**Contents**

External modem, user manual, serial cable (25 way to 25 + 9), driver software for Win 95/98/ NT4.0 on CD ROM, SuperVoice on CD ROM, telephone line cord, AC adaptor 9V ac 1.0A.

order code

**SB00730**

## PCMCIA 56K Fax Modem

**Features**

- PCMCIA type II full Duplex Fax/Modem
- Compatible with Bell 212A/103, V22/22bis/23/32/32bis/34/34 plus
- Group III fax compatible V17/29/27ter & V21
- Uses CCITT V42bis/MNP5 Data compression
- Tone & Pulse dialling
- Manual or Auto operation

**Contents**

Modem, Supervoice on CD and Line cord



ONLY  
£46.35

order code  
**SB01239**

## 3.5" 1.44Mb Floppy Disk Drive

**CITIZEN**

ALWAYS A GOOD IDEA

**Model:** OSD-U

Standard 34 way IDE and 4 pin power connectors



order code

**SB01493**

1-4 price each

£10.99 £8.99

5+

## 3.5" 1.44MB Floppy Drive

Samsung standard 3.5" 1.44MB floppy disk drive. Industry standard 34-way IDC and 3.5" power connections.



order code

**CH39796** £12.86 £11.94

1-9 price each

10+

## 3.5" 1.44Mb Floppy Drive

Standard 34-way and power connection

**SONY**



order code

**SB00087**

1-9 price each

10-19 £11.30 £10.75

20+ £10.30

## 12.9Gb Hard Disk

Samsung 12.9Gb IDE UDMA hard disk -  
type SV1296A

order code  
**SB01381**

price each  
**£108.99**



## 2½" 6GB Hard Disk Drive IDE HITACHI

Model: DK23AA-60

9.5mm Thick

order code  
**SB01494**

price each

**£129.99**



## 2½" 4Gb Hard Disk Drive

**FUJITSU**

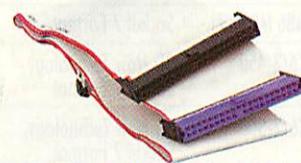
Model: MHC2040AT  
Height 12.5mm

order code  
**SB01460**



## UDMA 66 IDE Lead

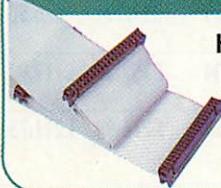
- Designed for UDMA ATA 33.3, 66.6
- 40-Way standard IDE connector with 80-way 30 AWG ribbon cable (450mm length)
- Master and slave configuration
- Can be used with existing IDE drives as well as the new high speed drives



order code  
**CH72155**

1-4 price each 5+  
**£8.45 £7.75**

## HDD Connection Lead



Hard Drives - IDE Controller to Twin HDD 40-way IDC Length 20".

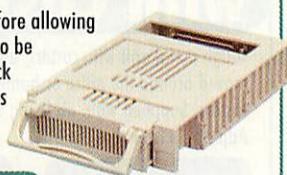
order code

1-9 price each 10+

**CH01729 £1.41 £1.13**

## HDD Cradle - 3.5" IDE

A 3.5" HDD cradle which fits in a standard 5.25" bay therefore allowing 3.5" drives to be swapped between PCs or different drives to be used in one PC. It has a handle for easy removal and a pack of fixing screws. The connector between cradle and holder is a 50 way Centronics. Unit measures (tray in cradle) (LxWxH) 225 x 146 x 43mm.



order code  
**SB00684**

1-9 price each 10+  
**£7.20 £6.70**

## 3.5" Hard Disk Drives

### Spinpoint Series

3.5" High Performance HDD, Microsoft Certified, with acoustic noise suppression technology.

- Fast ATA-5 Compatible
- Ultra DMA 66 Support
- S.M.A.R.T. Compliant
- Weight: 1.1 lbs
- Dims: 1" x 4" x 5.25" (HxWxD)
- Buffer Size: 512k
- Av. Seek Time: 8.5msec
- Spindle Speed: 5400rpm

order code

model

price each

**SB01474**

20.4Gb SV2044D

**£99.99**

**SB01498**

10.2Gb SV1022D

**£72.99 £69.99**

While Stocks Last

## 3½" Hard Disk Drives

3½" Drives IDE

order code description

price each

**SB01366** 8.4Gb (Seagate) Ultra ATA Model: ST38421A  
Spindle speed: 5400rpm Cache: 256kb Av. Seek Time: 10.5msec

**£79.99**

**SB00819** 8.4Gb (Samsung) Model: SV0844A  
Spindle speed: 5400rpm Cache: 512kb Av. Seek Time: 10msec

**£92.99**

## MX-1500 Digital Camera



1.5  
pixels

- 1.5 million pixel CCD sensor
- High grade, aluminium alloy body
- 1.8" LCD Monitor • Built-in flash, auto focus • Rechargeable Ni-MH battery
- Contents: Camera, 4MB 3.3V Smartmedia Card, AC Adaptor, Video Cable, Hand Strap, Re-chargeable Battery, IBM PC and Macintosh Serial Cable, Data Transfer Software, TWAIN driver for download and camera control, photodeluxe from Adobe Systems Inc.
- Min.Sys.Req.: PC - 486, 66MHz, Windows 95,98 or NT4, 32 MB RAM, 180MB HDD CD-ROM Drive, MAC - 68040 or Power PC, 7.6.1 to 8.5.1, 32MB RAM, 80MB HDD,CD-ROM Drive

### Technical Data

Resolution	1280x1024/ 640x480, 24 bit colour
CCD	1/2" CCD (1,500,000 pixels)
File Format	JPEG with 3 compression levels (1:4, 1:8, 1:16)
Storage Media	Smartmedia™ (3.3V, 2MB to 32MB)
Number of Stored Images	4MB Fine 5, Normal 11, Basic 22
Lens	F=38mm on a 35mm camera
Focus	Automatic, 10cm/3.9" to infinity
White Balance	Automatic/Manual (6 Modes)
Flash	Automatic, 2.5m/8.2ft(max.)
LCD Monitor	1.8" colour, LCD Monitor (110,000 pixels)
Output	Video and Serial
Power Source	2xAA batteries (Supplied), AC Adaptor (Not Supplied)
Dimensions (HxWxD)	69x104x31mm
Weight	195g

order code

**CH67921**

price each

**£239.60**

**CH65334**

**£28.94**

## Inkjet Refills

Made by Canon for Panasonic, supplied in original retail packaging, sealed from the factory.

They are suitable for the following machines:

**Canon** BJC400, BJC4100,

BJC4200, BJC4550,

BJCC2500 &

Canon Multipass

Stylewriter 2400 & Stylewriter 2500

**Apple** KX-FA152

**Panasonic** KX-FA152

**Packard Bell** KX-FA152

**Order Code** **Description**

**SB01407** **UG-3504** Colour cartridge

**Price Each**

**SB01408** **UG-3505** Black cartridge

**£4.60**

**SB01408** **UG-3505** Black cartridge

**£3.10**



FROM  
ONLY  
£3.10

## Removeable Hard Disk Cradle

This cradle allows a hard disk to be fitted into a PC and easily removed. There is an integral handle in the flush front panel.



All data connectors are gold plated for extra reliability. Suitable for all standard IDE 3 1/2" x 1" drives; the tray fits in a standard 5 1/4" drive bay. All screws to connect the drive and the tray are supplied, as are two keys to stop unauthorised removal.

### Technical Data

Dimensions: 225x145x42mm Compatibility: Standard 3 1/2" x 1" IDE Hard Drives

Note: The two types are NOT interchangeable.

order code  
**CH08701**

1-4 price each £16.11  
5+ £13.25

## 5 Chip 256k Cache



Supplied in packs of 5.  
Type No. W24M512AK-15 No. of pins: 32

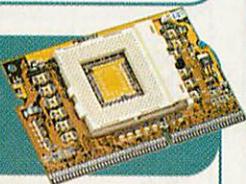
order code  
**SB00118** price/pack £10.50

## CPU Coolers

Heatsink and fan assemblies for the following:

order code	description	1-4	price each	5+
<b>SB01164</b>	Pentium II (fully encased type) to 350MHz	£4.40	£4.10	
<b>SB01166</b>	Pentium II (semi encased type) SECC 2 up to 600MHz	£4.40	£4.10	
<b>SB01163</b>	AMD K6/K6-2 166-350MHz & Intel MMX up to 233MHz	£2.35	£2.05	
<b>SB01165</b>	AMD K6, K6-2, K6-3, 166-450MHz & Intel (socket 370) Celeron up to 466MHz	£3.10	£2.85	
<b>SB00627</b>	Pentium II (fully encased type) to 350MHz (Model:HP21-1A)	£4.90	£4.10	
<b>CH35284</b>	Heat sink and fan for Pentium (to 233MHz) and Cyrix P200+, Dimensions: 31x50x53mm, Bearing Type: Ball	£3.10	£2.85	
<b>CH35285</b>	Heat sink and fan for K6 (to 300MHz), Dimensions: 37x50x64mm, Bearing Type: Ball	£4.70	£4.30	
<b>CH35286</b>	Heat sink and fan for Pentium II (233-266MHz) Dimensions: 55 x 120 x 19mm, Bearing Type: Ball	£10.88	£10.25	

## Socket 370 to Slot 1 Adaptor



This allows the new 'Socket 370' CPUs to be able to be used in the 'Slot 1' socket on motherboards. Uses the PII retention mechanism to lock in place. Jumper for 66/100MHz bus.

order code  
**SB00807**

price each £7.75

## External PCMCIA 2.5" IDE Box



While Stocks Last



ONLY  
£35.99

### Features

- Allows the user to add an external HDD (2.5") via a PCMCIA slot.
- PnP compliant PCMCIA type II (Release 2.1) interface required.
- Supports PCMCIA hot-swapping feature. • No external power required.
- Transfer rate up to 2MB/sec - depending on drive type.
- Supports DOS (V5 or above) / Win 3.1/95/98/NT.
- Dimensions: 85 x 140 x 30 (WxDxH).

Contents Adaptor box, PCMCIA adaptor cable, driver disk & User instructions.

order code

**SB00708**

## SIMM Socket

ONLY  
13p

72 Pin Simm Vertical mounting.

order code  
**SB00397**

## Great Deals on CPUs

While Stocks Last

product	description	order code	1-4	price each	5+
Cyrix 6x86 300	Socket 7 Format	SB00682	£29.25	£22.35	
Cyrix M2 333	Socket 7 Format 83 MHz Bus	SB01412	£30.75	£23.99	
Cyrix 6x86 M2 333	Socket 7 Format	SB00806	£30.45	£23.30	
AMD K6/2-450	3D Now Technology, Socket 7 Format	SB01136	£61.45	£46.99	
AMD K6/2-500	3D Now Technology, Socket 7 Format	SB01434	£57.95	£44.35	
Intel Celeron™ 400	128K CPU Cache, New Socket 370 Format	SB00800	£70.75	£54.20	
Intel Celeron™ 433	128K CPU Cache, Socket 370 Format	SB01437	£76.95	£58.85	
Intel Celeron™ 466	128K CPU Cache, Socket 370 Format	SB01438	£77.65	£62.99	
Intel Celeron™ 500	128K CPU Cache, Socket 370 Format	SB01439	£99.99	£76.50	
Intel P2® 400	100MHz Bus, 512K CPU Cache, Slot 1 Format	SB00804	£152.30	£119.99	
Intel P3® 500	100MHz Bus, 512K CPU Cache, Slot 1 Format	SB01138	£276.99	£211.75	

Note: CPU prices subject to change

## Deluxe Metal Stand with Castors

Tough metal unit with castors, allowing the unit to be easily moved around the office or home. Can also be used without castors. Supplied with all fixing screws. Adjustable from 4 3/4" to 6 3/4"



order code

**CH08584** 1-4 price each 10+ £7.88 £6.45

## Generic Memory Modules

order code	capacity	type	1-4 price each	5+
SB00338	4Mb	70ns, 9 Chip, SIMM	£11.45	£8.75
SB00145	4Mb	60ns, EDO, SIMM	£8.95	£6.85
SB00235	8Mb	60ns, EDO, SIMM	£12.85	£9.80
SB00553	16Mb	60ns, EDO, SIMM	£25.85	£19.75
SB00561	32Mb	60ns, EDO, SIMM	£47.50	£40.75
SB00786	64Mb	60ns, EDO, SIMM	£69.85	£59.99
SB00339	4Mb	70ns with parity, FPM, SIMM	£12.99	£10.50
SB00340	8Mb	70ns with parity, FPM, SIMM	£12.00	£9.20
SB00312	16Mb	60ns, FPM, SIMM	£26.75	£20.50
SB00342	16Mb	70ns with parity, FPM, SIMM	£36.15	£30.99
SB00785	32Mb	10ns, (3.3V, unbuffered synchronous), SDRAM DIMM	£28.99	£22.25
SB00562	32Mb	10ns, SDRAM, DIMM	£38.95	£33.45
SB00605*	64Mb	10ns, (3.3V, Synchronous DIMM, single height, unbuffered) DRAM DIMM	£53.75	£46.20
SB00671	64Mb	PC100MHz DIMM	£50.75	£38.85
SB00672	128Mb	PC100MHz DIMM	£102.99	£78.85

\* Please ensure your motherboard supports the above specification

\* Note memory prices subject to change

## XEROX Colour Printer ONLY

Model: DocuPrint C8

Features

- Colour printing using a 4 cartridge system, therefore only replace the colour that is empty
- Resolution of 600 x 600 dpi on plain paper, 1200 x 600 on photogloss paper
- Print speed of up to 5 ppm black, 2.5 ppm colour
- 100 sheet feeder (60 - 160gsm/m<sup>2</sup>)
- Paper types: A4, A5, B5
- Envelopes: #10, DL, C6
- Banner paper: A4 x 5
- One year on-site warranty (UK)
- Drivers for Win '95, '98 and NT 4.0 (web download) and DOS (PCL3e compatible)
- Power: 100 - 240VAC • Weight: 4.5Kg
- Dimensions: WxHxD - 434 x 267 x 350mm

Contents: Printer, drivers on CD, cartridges - 2 x Black, 1 x Cy, 1 x Ma, 1 x Ye, mains lead, instructions and LivePix Deluxe 2.0. Requires printer cable, IEEE 1284 preferred, such as CS02705

Optional Extras - Replacement Cartridges

Black Compatible	SB01484	£4.99
Cyan Compatible	SB01485	
Magenta Compatible	SB01486	
Yellow Compatible	SB01487	
Black Original	SB01488	£10.65
Cyan Original	SB01489	
Magenta Original	SB01490	
Yellow Original	SB01491	

order code

**SB01467**

£59.99

## Document Shredder

Model Royal RS100

Features

- Accepts with paper widths up to 9 3/8" (237mm).
- Shred width is 1/4" (6mm).
- Up to 3 sheets can be fed at once.
- Auto or Manual start function with Auto shut-off.
- Reverse function. • Weight: 5.5lbs (2.5Kg).
- Shredding speed up to 16 feet per minute.
- Dimensions: 115 x 370 x 60mm (DxWxH).

Note: No waste basket included.

Contents: shredder, power supply (12Vac 60W) & user guide.



order code

**SB00723**

price each

**£17.50**

ONLY

£39.99

## Olivetti JP170S Mono Inkjet Printer

This space saving inkjet printer comes with the following accessories:

- 3.5" driver disks for DOS/Win3.1/3.11/Win 95
- Paper out tray • Full documentation
- Black head/cartridge

Technical Data

Interface Parallel Centronics

Emulations PCL11 + IBM Proprietary x24

Resolution 600 x 300 dpi

Print Speed Draft @ 180 cps, LQ @ 150 cps

Paper Handling 40 sheets integrated ASF, 3 pages per minute, envelopes, A4 type, A5 type (landscape)

Note does not have a tractor feed facility

Electrical Characteristics

-220-240V, +6%; -10%; 50-60Hz

Physical Characteristics

Printer ready for use

Height 14.17 in (360mm)

Width 14.76 in (375mm)

Depth 7.87 in (200mm)

Weight 4.84 lbs (2.2Kg)



While Stocks Last

optional extras

description

Print Cartridge - Water Resistant Ink

order code OL2784431

Refillable Print Head + 3 Refill Cartridges

order code OL2782070

2 Refill Cartridges (Blister Pack)

order code OL2784433

Printer Lead

order code CSLEAD15

order code

**SB00701**

CITIZEN

ALWAYS A GOOD IDEA

## Colour Printer/Scanner

Model: PRINTiva 1700

A colour printer / scanner from Citizen which uses the Micro Dry printing system consisting of dry ink on ribbon cartridges to produce dots of a constant 40 micron size (inkjets 40 - 80 micron). Because of the dry ink dots, the page suffers no smearing, is waterproof and will not fade. The black output is denser than most inkjets and produces laser like text.



NEW

Features:

- Colour printing using a 4 cartridge/ribbon system, therefore only replace the colour that is empty.
- Resolution of 600 x 600 dpi colour; 1200 x 600 dpi monochrome
- 100 sheet feeder (90gsm) • Manual feed up to 220gsm
- Standard office, Smooth, Transparency, Card and Postcard can be used.
- Drivers for Win 3.1, 95, 98 and EPSON LQ2500 emulation
- The TWAIN (not TWAIN32) compliant scanner has an optical resolution of 600 dpi with options of 75, 150,300 dpi.
- Scans may be carried out in Black & white, Greyscale, 256 and 16 million colours.
- Comes with Citizen's CopyStudio scan software, scans may be saved in BMP /PICT /TIFF /JPEG /GIF formats.
- Intensity and sharpness may be altered. • Maximum scan size of A4.
- 2 year warranty (UK) • Power: 220 - 240VAC 40Watts
- Dimensions: WxHxD - 425 x 185 x 235mm • Weight: 5.5Kg

Contents: printer, drivers on disk, cartridges

- 1 x Black 1xCy 1xMa 1xYe, mains lead, instructions and MGI PhotoSuite

FROM ONLY

£69.99

Requires printer cable, IEEE1284 preferred, such as CS02705

Cartridges:	Order Code	Price Each
Black	CZ3000055	£3.78
Cyan	CZ3000056	£3.78
Magenta	CZ3000057	£3.78
Yellow	CZ3000058	£3.78
Metallic Gold	CZ3000059	£3.78
Metallic Silver	CZ3000060	£12.99
Metallic Red	CZ3000061	£17.55
Metallic Blue	CZ3000062	£17.55

order code

**SB01492**

1-2 price each 3+

**£74.99 £69.99**

## Combination Printer/Fax Scanner/Copier

**Model:** Olivetti OFX1100 Linkfax

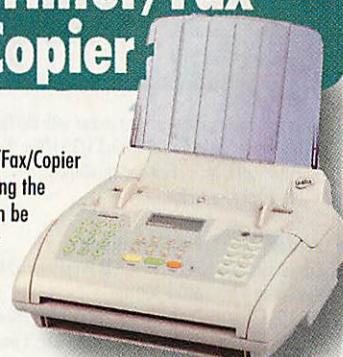
A plain paper combination inkjet Printer/Scanner/Fax/Copier which can be upgraded to a colour printer by adding the OL2784436 printhead. The fax/copier functions can be used without being connected to a PC, whereas for the scan and printer functions a PC is required. LinkFax 8 software is supplied for the PC interface (Win 3.11/95).

### Features:

- Uses standard A4 paper, 70 page hopper
- Document feed for 10 sheets
- Comms speed 2400 - 9600bps
- Manual/Auto Rx/Tx • Will only scan in Black & White
- 21 page memory in case of paper out
- 10 'One-touch' & 32 Speedial memory buttons
- Various reports available to print out
- Power: 220-240V 50/60Hz • REN3 • Weight: 6.3Kg
- Dimensions (WxDxH): 325x420x230mm/ max with trays

**Contents:** OFX1100, printhead storage box, parallel printer cable, black printhead, line cord, user guides and software on CD ROM.

OL2784436 Colour Printhead, disposable  
OL2782070 Black Printhead & 3 cartridges



ONLY

£99.00

ONLY

£119.99



While Stocks Last

order code

**SB00879**

## Plain Paper Fax/ Copier & Speakerphone

**Model:** BT Image 350

- Uses film and thermal printhead to produce 'non-fade' faxes
- ADF feeder for up to 5 sheets of A4
- Paper sizes: Width 210mm min - 216mm max. Length 150mm min - 600mm max.
- Four resolutions and 3 contrast settings are available
- Scanning method: CIS
- Four resolutions and 3 contrast settings are available
- Delayed transmission, Fax re-dial and Fax-back functions.
- Communicates at 9600/7200/4800/2400 bps.
- Holds up to 50 sheets of A4 in receive tray. • 200/240V 50/60Hz.
- 10 one touch dial memories and a 40 name directory memory. • Copy function.
- Answer machine connection. • Various reports are available to be printed.
- Handsfree telephone. • REN 1. • Dim: 280 x 220 x 280mm (WxDxH)

For replacement ink ribbon, order code TE02213

**Contents:** Image 350, user instructions, line cord, ext. PSU 24Vdc@2.2A, film.

order code

order code

**SB01392**

While Stocks Last

## EPSON Stylus Photo 870 Printer

- A4 size, black and colour inkjet printer
- Micro piezo print head technology 48 nozzles (black) and 5 x 48 nozzles per colour (Cyan, Light Cyan, Magenta, Light Magenta, Yellow)
- Bi-directional print direction with logic seeking

### Characteristics

- Noise level: approx. 38dBA during printing
- Maximum Resolution: 1440x720dpi in black and colour
- Print speed A4 page: Varies from 6s to 110s (Depending on resolution)
- Printer buffer: 256kB

### Paper Handling

- 100 x A4 sheets (64g/m<sup>2</sup>) cut sheet feeder
- Paper size: A4, A5, A6, Letter, B5, Legal, Panoramic (210x594mm), Paper Roll (100mmx8m) Envelopes: C6 (114x162mm), No. 10 (241x104mm) and DL (220x110mm)

### Dimensions

- (HxWxD): 175x470x285mm
- Weight: 5.6kg
- Min.Sys. Req.
- 486, 16MB RAM, 20MB HDD, Windows 95/98/NT4



NEW

## BT Plain Paper Fax/ Copier & Answerphone

**Model:** BT Image 370

- Uses film and thermal printhead to produce 'non-fade' faxes
- ADF feeder for up to 5 sheets of A4
- Paper sizes: Width 210mm min - 216mm max. Length 150mm min - 600mm max.
- Four resolutions and 3 contrast settings are available
- Group dialling, Delayed transmission, Fax re-dial and Fax-back functions
- Communicates at 9600/7200/4800/2400 bps
- REN 1.
- Handsfree telephone
- 10 one touch dial memories and a 40 name directory memory
- 200/240V 50/60Hz
- Various reports are available to be printed
- Scanning method: CIS
- Digital Answer machine can store up to 15 minutes of messages (inc. OGM)
- A 40 page memory will retain received faxes if the paper runs out
- Holds up to 50 sheets of A4 in receive tray
- Dimensions: 280x220x280mm (WxDxH)

**Contents:** Image 370, user instructions, line cord, ext. PSU 24Vdc@2.2A, film.

order code

**SB00788**

price each

1-2 £164.99 3+ £154.50

From  
ONLY  
£154.50

While Stocks Last

### optional extras

#### Original Cartridges

For Black (T007401)

Order Code EPT007401

For Colour (T008401)

Order Code EPT008401

order code

**CH73866**

price each

1-2 £242.14 3+ £232.19

## EPSON Stylus 1160 Colour Printer

- A3 and A4 size, black and colour inkjet printer
- Micro piezo print head technology 144 nozzles (black) and 48 x 3 nozzles per colour (Cyan, Magenta, Yellow)
- Bi-directional print direction with logic seeking

### Characteristics

- Noise level: approx. 42dBA during printing
- Maximum Resolution: 1440x720dpi in black and colour
- Print speed A4 page: Varies from 6s to 103s (Depending on resolution)
- Printer buffer: 256kB

### Paper Handling

- 100 x A4 sheets (64g/m<sup>2</sup>) cut sheet feeder
- Paper size: A3, A3+, A4, A5, A6, Letter, B5, Legal, Panoramic (210x594mm), Envelopes: C6 (114x162mm), No. 10 (241x104mm) and DL (220x110mm)

### Dimensions

- (HxWxD): 175x609x311mm
- Weight: 8.4kg

### Min.Sys. Req.

- 486, 16MB RAM, 10MB HDD, Windows 95/98/NT4



**NEW**

### optional extras

description	order code	price each
Original Cartridges		
Black (SO20189)	CH75275	£15.49
Colour (SO20191)	CH75276	£16.40

order code

**CH73867**

1-4      price each      5+

£363.27    £348.34

## Inkjet Wordprocessor/Typewriters

### Models:

Olivetti JetWriter 900

Triumph Adler Gabriele Inkwriter II



These typewriter/wordprocessor combinations have an LCD editing and menu screen with inkjet printing capabilities in a fully portable unit, weighing only 5.6Kg. The unit comes with a carry handle and a mains lead storage compartment.

Both wordprocessors are identical other than cosmetic differences.

### Features:

- Other functions as well as Wordprocessor:
- Address Manager, Calculator and Spreadsheet (256 column by 999 lines)
- Built-in 80,000 word spellchecker
- Mail Merge mode from Address Manager
- 5 built-in fonts: Courier, Swiss Mono, Swiss, Dutch and Murray Hill all with 5 point sizes - 9, 12, 18, 24 & 36
- Print speed: 120cps
- Single sheet paper handling
- Built-in 3.5" floppy drive
- Power: 240Vac, 50/60Hz
- Dimensions: WxDxH: 418x330x105mm

### Contents:

Typewriter, printhead (OL2784435), user guide and tutorial disk.

### Optional Extras:

OL2784435 Black printhead, disposable  
OL2782077 Black printhead & 3 cartridges

### Order Code

**SB01396**

**SB01393**

### Model

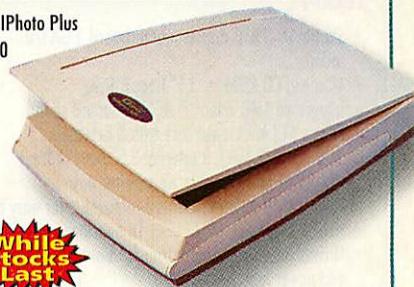
Olivetti

Triumph Adler

**ONLY**  
£88.99  
each

## Mustek Scan Express Range

Each scanner is supplied with software Ulead's iPhoto Plus package (MicroGraf Picture Publisher on 12,000 models), Textbridge Classic OCR, Mustek scanning desktop and TWAIN drivers.



**FROM ONLY**  
**£48.99**

**While Stocks Last**

### Technical Data

#### Model

#### Order Code

#### Interface

#### Colour Depth

#### Optical Resolution

#### Interpolated Resolution

#### Single Pass

#### Scan Area

#### EPP Connection

#### Pass-through Parallel Port

#### Dedicated Power Supply

#### SCSI Interface

#### TWAIN Driver

#### ScanExpress

#### 6000P

#### CH3347\*

#### EPP

#### 30-bit 1.1

#### billion colours

#### 600x300 dpi

#### 4800x4800 dpi

#### Yes

#### 216 x 296mm

#### Yes

#### 212.5 x 287.5mm

#### No

#### Yes

#### Yes

#### No

#### Yes

#### Yes

#### Yes

#### ScanExpress

#### 12000 SP

#### CH46427

#### SCSI

#### 36-bit 68.7

#### billion colours

#### 1200x600 dpi

#### 9600x9600 dpi

#### Yes

#### 212.5 x 287.5mm

#### No

#### Yes

## Bare Bones Celeron System

**Features**

- Shuttle Intel 810 chipset motherboard, PGA370 socket
- 48 speed CD ROM • 3.5" floppy drive
- Integrated 4MB video • AC'97 onboard sound
- Stylish ATX Midi tower case with 3 External 5.25" bays (2 free), 3 Internal 3.5" bays (1 free)
- ATX 250W power supply, no monitor power socket, 250W ac both sides are removable for easy access
- Heatsink and Fan for CPU • Dimensions: 440x230x350mm (DxWxH)
- Drivers for all video/audio/motherboard/supplied, booklet for motherboard and power lead

**Options:**

- Memory 32MB PC100 DIMM SB00785
- 64MB PC100 DIMM SB00671
- 128MB PC100 DIMM SB00672
- CPU Celeron 400MHz SB00800

ONLY  
£162.75



Note: No HDD, keyboard, mouse, CPU or memory supplied

- HDD 8.4GB Samsung 12.9GB Samsung
- PS2 Keyboard
- PS2 Mouse

order code

**SB01419**

## Bare Bones Socket 7 System

**Features**

- Shuttle SiS530 chipset motherboard, socket 7
- 48 speed CD ROM • 3.5" floppy drive • Onboard video
- Onboard sound • Stylish ATX Midi tower case with 3 External 5.25" bays (2 free)
- 3 Internal 3.5" bays (1 free)
- ATX 250W power supply, no monitor power socket, 240V ac both sides are removable for easy access
- Heatsink and Fan for CPU • Dimensions: 440x230x350mm (DxWxH)
- Drivers for all video/audio/motherboard/mouse supplied, booklet for motherboard and power lead

**Options:**

- Memory 32MB PC100 DIMM SB00785
- 64MB PC100 DIMM SB00671
- 128MB PC100 DIMM SB00672
- CPU 6x86 300
- 6x86 333
- AMD K6/2 450

ONLY  
£149.50

- HDD 8.4GB Samsung 12.9GB Samsung
- PS2 Keyboard
- PS2 Mouse

order code

**SB01420**

## IBM® Aptiva Systems

While Stocks Last

LIMITED STOCKS

FROM ONLY  
£349.99



These systems are supplied complete with monitors (not upgradeable), mouse, speakers, cables and non IBM keyboards. All software is pre-installed (no windows disks supplied).

Model	IBM No	CPU	HDD	RAM	OS	Monitor	Graphics	Modem	CD	Sound	Case	Order Code	Price Each
Aptiva EP266	2138-E80	PII 266	4.0G	48M	Win95	15"	3D ATI AGP Rage Pro 4M	K56	24x	Crystal	MT	SB00868	£349.99
Aptiva SP266	2142-S36	PII 266	4.2G	32M	Win95	17"	3D ATI AGP Rage Pro 2M	33.6	24x	Crystal	MT	SB00870	£499.99
Aptiva EK6	2137-E74	AMD K2 300	4.0G	48M	Win95	15"	3D ATI Rage II+ 2M	K56	24x	Crystal	MT	SB00872	£399.99

Note: Items supplied with each individual order code (type of monitor/speakers etc.) will vary from those pictured above.

Above system is supplied in black & remaining items supplied in white as pictured

Case Refs: MT=Mini Tower

FURTHER INFO AVAILABLE ON THE IBM WEBSITE  
[WWW.PC.IBM.COM/SUPPORT](http://WWW.PC.IBM.COM/SUPPORT)

## PC Replacement (AT Type) Power Supplies

AT style PC power supplies for replacing faulty units or building into new cases. Input is via standard IEC connection with an IEC socket for monitor power. Outputs are 1 x motherboard, 4 x 5.25" type and 2 x 3.5" connectors. The unit has an on/off switch on a flylead for mounting on the case.

**Technical Data**

Dimensions (HxWxD) 86x150x140mm

Input voltage 115~230V ac 50/60Hz

Output Voltage +5V, -5V, +12V, -12V

Approvals UL, CSA, TUV, CE



order code

power rating

1-9 price each

10+

**CH42894**

**200W**

**£18.38**

**£16.85**

**CH42901**

**300W**

**£30.66**

**£28.81**

## Celeron™ 433MHz Multimedia PC

**Features:**

- Intel Celeron™ 433MHz CPU
- Shuttle AV61 motherboard
- 64MB of PC100 RAM
- 8.4GB Hard Disk
- 3.5" floppy drive
- 52X CD ROM drive
- 8MB SiS AGP video card
- Creative Labs PCI 128 soundcard
- ATX Midi tower case
- PS2 keyboard and mouse
- Windows '98 preloaded (Win '98 supplied on CD)
- Drivers for all video/audio motherboard/mouse supplied, booklet for motherboard



ONLY

£399.00

order code

**SB01458**

## Pentium® 233 MMX Notebook

This notebook has the distinction of having a 'wide-screen' 10.4" TFT LCD display as well as being produced by a well established manufacturer.

### Model Chicony MP980

- Pentium® 233 MMX CPU (not upgradeable)
- 32MB of SDRAM (upgradeable to 64MB - order code SB01473)
- 512Kb level 2 cache • Award BIOS
- Intel 430TX chipset
- 10.4" TFT LCD screen, 225 x 133mm screen size, 1024 x 600 resolution
- Simultaneous LCD and external CRT operation
- PCI bus graphics with 2Mb RAM
- Removable Ultra ATA 2.5" Hard drive of 3Gb, for extra data security
- NiMH battery with charger 90-264Vac
- Connectors available: 1 x 9 way Serial, 1 x Parallel, 15 way SVGA, Audio Mic in/ Speaker out, 1 x USB, IrDA compatible, PS2
- PCMCIA slots (1 x Type II)
- Floppy drive is an external type using the parallel port
- Windows '95 keyboard with built-in Trackpoint (USA layout)
- 16 bit stereo sound using Yamaha 715 chipset, with built-in speakers and mic
- Dimensions: 280 x 175 x 35mm (WxDxH) • Weight: 1.6 Kg

### Contents:

Notebook, Carry Case, Manual, Ext FDD drive, AC Adaptor / Charger, 1 x Battery & Driver / Utility CD

description	order code	1-2	price each	3+
Notebook with no operating system	SB01390	£530.50	£515.00	
Notebook with Win'98 on CD	SB01391	£616.99	£596.50	

### Options:

- Ext CD ROM x 24 speed
- 56k PCMCIA Fax Modem

description	order code	price each
Ext CD ROM x 24 speed	SB01241	£89.25
56k PCMCIA Fax Modem	SB01239	£46.35

## Pentium® Multimedia Notebook

Lightweight and portable - suitable for use in the home, office or car. Ready to use with external CD ROM and pre-loaded with MS Windows 95 and Lotus Smartsuite.

### Unit includes

- Pentium® 120 CPU • 24Mb Ram
- 810Mb Hard Drive • 8.4" TFT Colour LCD Screen • External Floppy Drive • 1Mb of Video Memory
- MS Windows 95 pre-loaded • 20 speed External PCMCIA CD ROM - mains and battery
- UK Keyboard and trackpoint Mouse • Lotus Smartsuite pre-loaded - includes: 123 (Spreadsheet), Wordpro (Wordprocessing), Approach (Database), Freelance Graphics (DTP), Organiser (Electronic Diary)
- Built-in Speakers

### Contents:

Notebook computer, 20 speed external PCMCIA CD ROM, AC adaptor 100/240V 50/60Hz 15Vdc @ 2.3A, 2 x Li-ion batteries - 7.2V 1200 mAH, external floppy drive. User instructions and 2 spare pointing stick rubber tops.

## 400MHz Laptop

### Model CTX EzBook 700E Series

- AMD 400MHz K6/2 processor (upgrades n/a from CPC)
- 32MB of EDO RAM using 2 sockets, both used (upgradeable to 128Mb, n/a from CPC)
- 512Kb level 2 cache
- 12.1" Active TFT LCD screen, up to 800 x 600 @ 64K colours
- Simultaneous LCD and external CRT operation at 640 x 480
- PCI bus 128 bit GUI accelerator with 2Mb EDO RAM
- Removable 2.5" Hard drive of 3.9Gb, for extra data security
- Removable 3.5" Floppy drive
- Removable IDE x 24max CD ROM drive
- NiMH 12V 3.8AH battery can be installed in either CD-ROM or FDD bay
- Connectors available: 1 x 9 way Serial, 1 x Parallel, PS2 keyboard/Mouse, 15 way MIDI/Game, 15 way SVGA, Audio Line in/ Mic in/ Speaker out, IrDA, 2 x USB, 80 way Replicator socket and TV out
- PCMCIA slots (2 x Type II or 1 x Type III)
- The lower socket is ZV standard but both are Card Bus compatible
- Built-in Touchpad • Windows '98 keyboard
- Indicators for machine status of Battery level, Drive activity etc.
- 16 bit stereo sound with built-in mic and speakers
- Kensington Lock support • Dimensions: 230 x 297 x 48mm (WxDxH)
- Weight: 2.95 Kg

### Contents:

Laptop, Manual, AC Adaptor / Charger, 1 x Battery & Driver / Utility CD

description	order code	price each
Laptop PC no operating system	SB01394	£629.00
Laptop PC with Win'98 on CD	SB01410	£715.99
Spare battery	SB01411	£70.99
Carry Case	SB01445	£20.50

## 233MHz Notebook PCs

### Model: SOYO PW9800

- Cyrix GXM-233 processor
- 32MB of EDO RAM, expandable to 128MB, with one free socket
- 8.2" DSTN LCD screen, 640x480 @ true colour
- Simultaneous LCD and CRT (up to 1024 x 768 depending on monitor) output
- Onboard 16 bit sound with built-in speakers and mic
- Internal Hard Drive of 2Gb

### Description

Notebook PC no operating system, internal hard drive 2Gb  
 Notebook PC with Win'98 preloaded, internal hard drive 2Gb  
 Notebook PC no operating system, internal hard drive 3Gb  
 Notebook PC no operating system, internal hard drive 3Gb

- External 3.5" Floppy drive, using Parallel port
- External x24max CD ROM drive, using Ext IDE port
- LiON battery
- Windows keyboard (USA layout)
- Touchpad • PCMCIA sockets - 1 x type III or 2 x type II
- Interface/Connectors available:  
 1 x 9 way Serial, 1 x Parallel/Floppy, 1 x 15 way CRT, 1 x Mic in, 1 x Headphone out, 2 x USB, IR port, 1 x Ext IDE/CD ROM socket
- AC adaptor: 100 - 240Vac input, 15Vdc 3.4A output

### Order Code

SB01427	£410.99
SB01428	£462.45
SB01470	£430.99
SB01471	£482.45

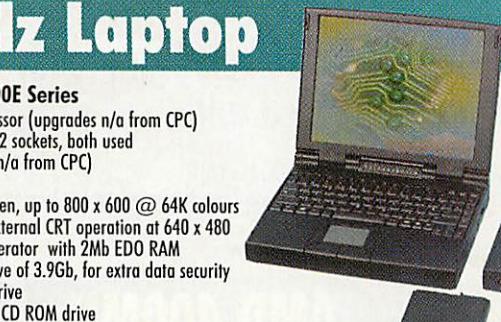
### Price Each

Contents	Notebook, Manual, AC Adaptor/Charger, Carry Case, 1 x Battery, Driver/Utility Disks
Optional Extras	Memory Upgrade (32MB-64MB) - SB01432 • Modem - SB01239 • Battery - SB01433



ONLY  
 £549.00

While  
 Stocks  
 Last



While  
 Stocks  
 Last

# A range of Multimedia PCs

All of the systems below are ready to run.  
They are supplied with:

- 3.5" floppy drive
- Win '98 pre-loaded (Win '98 supplied on CD)
- Drivers for all video/audio/motherboard/mouse supplied, booklet for motherboard
- 12 months warranty, return to base

Note: Monitor required - see CPC Catalogue



## AMD 400MHz PC

- AMD K6/2 3D Now 400MHz CPU
- DVD playback software
- 6th generation Pioneer DVD drive
- Via AGP chipset motherboard 1 x AGP, 3 x PCI, 3 x ISA slots (AGP & 1 x PCI slot already used)
- 64MB of PC100 RAM using 1 x DIMM. Either SDRAM or EDO RAM can be used
- 8.4Gb Hard Disk
- 8Mb S3 Savage AGP video card with TV out (not onboard)
- Creative Labs Soundblaster PCI 64 audio card (not onboard)
- 1 x 9 way & 1 x 25 way Serial ports, 1 x Parallel port, 2 x USB ports, 1 x KB and 1 x Mouse

order code  
**SB01169**

While Stocks Last

price each  
**£459.00**

## Intel® Celeron™ 433MHz PC

- Intel® Celeron™ 433MHz Processor
- Shuttle ME18 motherboard
- 64MB of PC100 RAM using 1 x DIMM
- 4.3GB UDMA Hard Disk
- 52 speed CD ROM drive
- Integrated Intel® 810 video chipset
- Integrated Yamaha sound
- Windows keyboard and mouse
- Micro ATX case
- Case dimensions (WxHxD): 75x370x365mm

order code  
**SB01480**

price each  
**£360.00**

## Intel® Celeron™ 466MHz PC

- Intel® Celeron™ 466MHz Processor
- Shuttle VIA chipset motherboard
- 64MB of PC100 RAM using 1 x DIMM
- 10.2GB UDMA Hard Disk
- 52 speed CD ROM drive
- 8MB SiS 6326 AGP graphics accelerator card
- Soundblaster 128 soundcard
- Windows keyboard and mouse
- Micro ATX case
- Case dimensions (WxHxD): 210x405x435mm

order code  
**SB01478**

price each  
**£415.00**

## Intel® Pentium® III 500MHz Power PC

- Intel® Pentium® III 500MHz Processor
- Shuttle VIA chipset motherboard
- 64MB of PC100 RAM using 1 x DIMM
- 20GB UDMA Hard Disk
- 52 speed CD ROM drive
- 16MB Savage 4 graphics accelerator card
- Soundblaster 128 soundcard
- 55.6 internal PCI modem
- Genius multimedia keyboard and mouse
- ATX case
- Case dimensions (WxHxD): 210x405x435mm

order code  
**SB01476**

price each  
**£610.00**

## AMD Athlon 600MHz PC

- AMD Athlon 600MHz Processor
- Shuttle Athlon motherboard
- 128MB of PC100 RAM using 1 x DIMM
- 20GB UDMA Hard Disk
- 52 speed CD ROM drive
- 32MB TNT2 M64 graphics accelerator
- Soundblaster 1024 Live Value soundcard
- 55.6 internal PCI modem
- Genius multimedia keyboard and mouse
- ATX case
- Case dimensions (WxHxD): 210x405x435mm

order code  
**SB01483**

price each  
**£680.00**

## Intel PIII 450MHz PC

- Intel PIII 450MHz CPU
- 10.2GB Hard Disk
- 6th generation Pioneer DVD drive
- Intel 440 BX AGP chipset motherboard 1 x AGP, 4 x PCI, 3 x ISA slots (AGP & 2 x PCI slot already used)
- 128MB of PC100 RAM. Either SDRAM or EDO RAM can be used
- 16Mb Voodoo Banshee AGP video card (not onboard)
- Creative Labs Soundblaster Live Value audio card (not onboard)
- 55.6 internal modem (not onboard)
- 2 x 9 way Serial ports, 1 x Parallel port, 2 x USB ports, 1 x KB and 1 x Mouse

order code  
**SB01171**

While Stocks Last

price each  
**£699.00**

## AMD K6/2 500MHz PC

- AMD K6/2 500MHz Processor
- Shuttle 591P motherboard
- 64MB of PC100 RAM using 1 x DIMM
- 8.4GB UDMA Hard Disk
- 52 speed CD ROM Drive
- 8MB Savage 4 graphics accelerator
- Soundblaster 128 soundcard
- Windows keyboard and mouse
- Micro ATX case
- Case dimensions (WxHxD): 75x370x365mm

order code  
**SB01477**

price each  
**£405.00**

## Intel® Celeron™ 500MHz PC

- Intel® Celeron™ 500MHz Processor
- Shuttle VIA chipset motherboard
- 64MB of PC100 RAM using 1 x DIMM
- 13.6GB UDMA Hard Disk
- 52 speed CD ROM drive
- 8MB SiS 6326 AGP graphics accelerator
- Soundblaster 128 soundcard
- Windows keyboard and mouse
- Micro ATX case
- Case dimensions (WxHxD): 210x405x435mm

order code  
**SB01481**

price each  
**£450.00**

## Intel® Pentium® III 600MHz Power PC

- Intel® Pentium® III 600MHz Processor
- Shuttle VIA chipset motherboard
- 128MB of PC100 RAM using 1 x DIMM
- 20GB UDMA Hard Disk
- 52 speed CD ROM drive
- 32MB Savage 4 graphics accelerator card
- Soundblaster 128 soundcard
- 55.6 internal PCI modem
- Genius multimedia keyboard and mouse
- ATX case
- Case dimensions (WxHxD): 210x405x435mm

order code  
**SB01479**

price each  
**£675.00**

## Intel® Pentium® III 500MHz Power PC with CD RW Writer

- Intel® Pentium® III 500MHz Processor
- Shuttle VIA chipset motherboard
- 64MB of PC100 RAM using 1 x DIMM
- 20GB UDMA Hard Disk
- 52 speed CD ROM Drive
- 24 x 4 x 4 CD RW Writer
- 16MB Savage 4 graphics accelerator card
- Soundblaster 128 soundcard
- 55.6 internal PCI modem
- Genius multimedia keyboard and mouse
- ATX case
- Case dimensions (WxHxD): 210x405x435mm

order code  
**SB01482**

price each  
**£699.99**

## AT Mini Case

**Features:**

- 200 Watt AT power supply without monitor power outlet
- 2 free 5 1/4" external bays
- 2 free 3 1/2" external and 1 free internal bay
- Power and Reset switches on front panel
- Hard disk and power LEDs on front panel
- 8 expansion slots
- Dimensions: 180 x 340 x 430 (WxHxD)mm

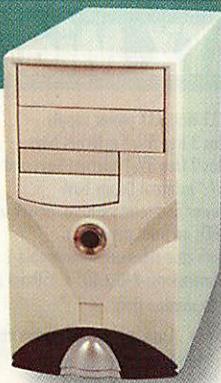
**Contents:** case, mains lead, pack of hardware

order code

**SB01455**

price each

**£20.50**



## AT Mini Case

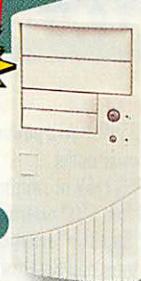
**ONLY**  
**£20.50**

- 200 Watt AT power supply with monitor power outlet
- 2 free 5 1/4" external bays
- 2 free 3 1/2" external and 1 free internal bay
- Power and Reset switches on front panel
- Hard disk and power LEDs on front panel
- Removable top
- Dimensions: 180 x 335 x 420 (WxHxD)mm

**Contents:** Case, mains lead, pack of hardware

order code

**SB01416**



## AT Mini Case

**ONLY**

**£20.50**

- 200 Watt AT power supply with monitor power outlet
- 2 free 5 1/4" external bays
- 1 free 3 1/2" external and 2 free internal bays
- Power and Reset switches on front panel
- Hard disk and power LEDs on front panel
- Dimensions: 180 x 335 x 430mm (WxHxD)

**Contents:** case, mains lead, pack of hardware

order code

**SB01173**



## AT Midi Case

**ONLY**

**£23.99**

order code

**SB01174**



**Contents:** case, mains lead, pack of hardware

## Micro ATX Desktop Case

- 150 Watt ATX power supply without monitor power outlet
- 230/115V ac switchable
- 2 free 5 1/4" external bays
- 1 free 3 1/2" external and 1 free internal bay
- Power and Reset switches on front panel
- Hard disk and power LEDs on front panel
- Removable top
- 4 expansion slots
- Dimensions: 360 x 145 x 420mm (WxHxD)mm

**Contents:** Case, mains lead, pack of hardware



**ONLY**  
**£25.99**

order code

**SB01429**

## ATX Midi Case

- 235 Watt ATX power supply with monitor power outlet
- 230/115V ac switchable
- 3 free 5 1/4" external bays
- 2 free 3 1/2" external and 1 free internal bay
- Power and Reset switches on front panel
- Hard disk and power LEDs on front panel
- Removable sides
- 7 expansion slots
- Dimensions: 210 x 410 x 435mm (WxHxD)

**Contents:**

Case, mains lead, pack of hardware

order code

**SB01417**



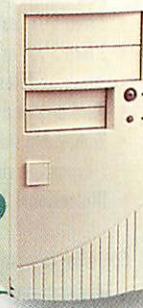
**ONLY**  
**£27.99**

## Micro Size ATX Mini Case

**ONLY**  
**£23.75**

order code

**SB01415**



## ATX Midi Case

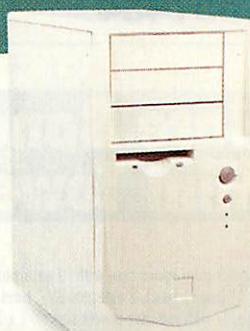
- 235 Watt ATX power supply without monitor power outlet
- 3 free 5 1/4" external bays
- 1 free 3 1/2" external and 2 free internal bays
- Power and Reset switches on front panel
- Hard disk and power LEDs on front panel
- Removable sides
- Dimensions: 210 x 410 x 430mm (WxHxD)
- 8 Expansion slots

**Contents:** case, mains lead, pack of hardware

order code

**SB01175**

1-4 price each  
**£27.99** 5+  
**£24.99**



## ATX Midi Case

**ONLY**  
**£28.85**

order code

**SB01414**



## ATX Midi Case

### Features:

- 235 Watt ATX power supply with monitor power outlet
- 230/115V ac switchable
- 3 free 5 1/4" external bays
- 2 free 3 1/2" external and 1 free internal bay
- Power and Reset switches on front panel
- Hard disk and power LEDs on front panel
- Removable sides
- 7 expansion slots
- Dimensions: 215 x 410 x 435 (WxHxD)mm

Contents: case, mains lead, pack of hardware

order code

**SB01453**



ONLY  
£29.25

## ATX Midi Case

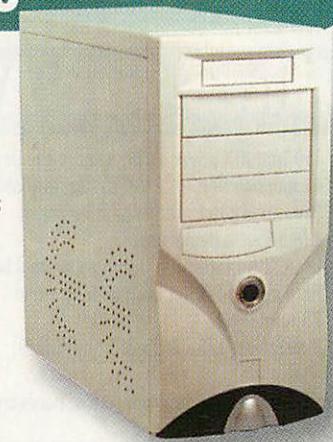
### Features:

- 235 Watt ATX power supply with monitor power outlet
- 230/115Vac switchable
- 3 free 5 1/4" external bays
- 2 free 3 1/2" external and 2 free internal bays
- Power and Reset switches on front panel
- Hard disk and power LEDs on front panel
- Removable sides
- 7 expansion slots
- Dimensions: 205 x 420 x 445 (WxHxD)mm

Contents: case, mains lead, pack of hardware

order code

**SB01454**



price each  
£34.85

## Bare Bones Pentium AT Mini Tower

While Stocks Last

### Features

- Stylish mini tower case with: 2 external 5 1/4" bays (2 free), 1 internal 3 1/2" bay (1 free), 2 external 3 1/2" bays (1 free), AT200W power supply with monitor power socket, 1 x 3 1/2" floppy, motherboard

Motherboard: PowerBoard P586TX

- Socket 7 supporting the following CPUs: Intel Pentium 90-233MHz, Intel MMX 166-233MHz, AMD K5 PR90 - PR166, K6 PR200 - PR233, Cyrix 6x86 PR133+ - PR200+ • Clock speed from 55-75MHz
- CPU voltages from 2.1V to 3.52V • Intel 430TX chipset
- 512Kb onboard Burst/Pipeline cache • Award PnP BIOS
- 4 x PCI, 3 x ISA slots
- 2 x DIMM (3.3V unbuffered) and 4 SIMM sockets supporting up to 256Mb either SDRAM/EDO or FPM RAM can be used • Supports 2 HDD interfaces to Mode 4, UDMA33 compatible
- 1 x 9 and 1 x 25 way serial ports, 1 x parallel port, 1 x AT keyboard

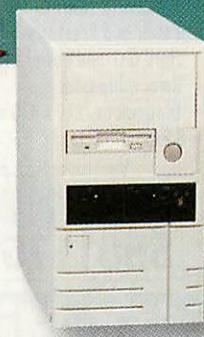
Dimensions: 410x180x340mm (DxWxH)

### Contents

Driver for motherboard, booklet for motherboard, keys, HDD and FDD cable and set of screws

**Note** There is no CPU, memory or video card supplied

Mains lead not supplied  
(order code SB01148 black, 2m IEC to 13A)



order code  
**SB01308**

price each  
1-2 £45.00 3+ £39.00

## ATX Midi Case

- 235 Watt ATX power supply
- Has 3 free 5 1/4" external bays
- Has 2 free 3 1/2" internal bays and 1 free 3 1/2" external floppy bay
- Power and reset switches, power and HDD LEDs on front panel
- Both case sides are removable
- Dimensions: 240 x 405 x 450mm (WxHxD)
- 7 Expansion slots

Contents: Case, mains lead, screws and ATX mounting plates

Note: No power socket for monitor



FROM ONLY

£25.99

order code  
**SB00823**

price each  
1-4 £30.99 5+ £25.99

## ATX Midi Case

### Features:

- 3 free 5 1/4" external bays
- 2 free 3 1/2" external and 2 free internal bays
- Power, Reset and Sleep switches on front panel
- Hard Disk activity and Power LED on front panel
- 235 Watt ATX Power supply, with outlet for powering monitor, 115/230V switchable, 50/60Hz

Contents: ATX case, Mains lead, pack of screws

Dimensions: 210x400x430mm (WxHxD)



price each

order code  
**SB00654**

£46.35

COMPU-AFE

## Case 1002

### Features

- Strong and comfortable handle
- Rear 3-file compartment
- Utility pouch for batteries, cables etc
- Main compartment for laptop/notebook
- Two velcro straps hold computer securely
- Long lasting metal strap fittings
- Internal organiser has storage pockets for disks, pens, business cards and calculator
- Padded pocket holds a portable printer or files
- Adjustable and removable shoulder strap with cushion pad
- Dimensions (HxWxD) 300x400x200mm



order code

**CH08893**

price each  
1-2 £39.45 3+ £36.65

## Case '1000'

COMPU-AFE

- Exterior padded pocket • Internal organiser with storage pockets
- 180° opening in main compartment for easy access to laptop/notebook
- Two velcro straps to hold computer securely • Rear compartment
- Strong and comfortable handle
- Dimensions (HxWxD) 300 x 400 x 110mm
- Adjustable and removable shoulder strap with cushion pad and metal fixings



CONTENTS NOT INCLUDED

order code

**CH08891**

price each  
1-2 £24.23 3+ £22.91

## PROVIEW 14" SVGA Monitor

**Model:** Proview PX-456

**Features:**

- 14" CRT (13.18" viewable) 0.28mm dot pitch
- Digital Controls via OSD (On Screen Display) for adjustment of: Size, Geometry, Bright/Contrast
- Horizontal Frequency: 30 - 54KHz
- Vertical Frequency: 50 - 120Hz
- Maximum Resolution: 1024 x 768
- Built-in microphone
- VESA, DPMS, LR, EPA, TCO 95 compatible
- Power: 100 - 240Vac 50/60Hz, 80 Watts
- Dimensions: (LxWxH) 384 x 359 x 371mm
- Weight: 11.0kg

**Note:** the optional speakers in the user guide are not available from CPC.

**Contents:** monitor, user guide, mic lead & mains lead (to either 13A)

order code

1-9 price each

10+

**SB01446 £75.99 £72.99**

While  
Stocks  
Last

## 17" Digital Monitor

**Model:** Hyundai S770

**Features:**

- 17" CRT (16" viewable), 0.27mm Dot pitch
- OSD with adjustment of - brightness, contrast, H/V size & position, trapezoid, zoom, parallelogram, corner pin, rotation, moiré, colour temperature, degauss
- Has controls on front for OSD, recall, power and zoom
- Horizontal Frequency: 30 - 70KHz.
- Vertical Frequency: 50 - 130Hz.
- Resolution: 640 x 480 @ up to 120Hz up to 1024 x 768 @ up to 85Hz
- TCO'92, VESA, DPMS, PnP • Power: 100 - 240Vac, 90 Watts
- Dimensions: WxHxD - 416 x 416 x 447mm • Weight: 16Kg

**Contents:** monitor, user guide  
For mains lead use SB01148

order code

1-2 price each

3+

**SB01462 £124.99 £119.99**

FROM  
ONLY  
£119.99

## 17" Digital Monitor

**Model** Hyundai DeluxScan 7770

**Features**

- 17" CRT (16" viewable), 0.27mm Dot pitch
- OSD (5 languages) Digital Controls for adjustment of - brightness, contrast, H/V size & position, trapezoid, zoom, parallelogram, moiré, degauss, rotation, recall, preset & colour temperature
- Horizontal Frequency: 30 - 70KHz
- Vertical Frequency: 50 - 150Hz • Weight: 16Kg
- Resolution: 640 x 480 @ 120Hz up to 1280 x 1024 @ 60Hz
- MPR II, VESA, DPMS • Power: 90 - 240VAC, 90 Watts
- Dimensions: WxHxD - 416 x 416 x 447mm

**Note** The optional speakers are not available from CPC

**Contents** Monitor, user guide & mains lead



While  
Stocks  
Last

ONLY  
£139.99

order code

**SB01157**

## 15" Digital Monitor

**Model:** Hyundai S560

**Features:**

- 15" CRT (13.7" viewable), 0.28mm Dot pitch
- OSD, Digital Controls for adjustment of - brightness, contrast, H/V size & position, trapezoid etc.
- Horizontal Frequency: 30 - 57KHz.
- Vertical Frequency: 45 - 130Hz.
- Resolution: 640 x 480 @ 85Hz up to 1280 x 1024 @ 60Hz
- MPR II, VESA, DPMS • Power: 90 - 264Vac, 90 Watts
- Dimensions: WxHxD - 365 x 370 x 386mm • Weight: 11.5Kg

**Contents:**

Monitor, user guide & mains lead

order code

1-2 price each

3+

**SB01461**

**£89.00 £84.99**

FROM  
ONLY

£84.99

## TATUNG C5B 15" Digital Monitor

- 15" FST (13.7" visible) 279x210mm display area
- 0.28mm dot pitch
- Flat screen for better picture quality and less reflection
- 4 year on-site warranty
- Anti-glare tube with antistatic coating
- DDC 1/2 B PnP for simple installation and configuration



4 Year  
on-site Warranty

**Technical Data**

Screen Size	15" FST (13.7" visible)
Display Area	279x210mm
CRT Dot Pitch	0.28mm
Scan Rate	30-70KHz
Refresh Rate	50-120Hz
Properties	Anti-glare, antistatic, anti-reflection coating
User Controls	Contrast, Brightness, Size, Position, Pincushion, Trapezoid, Tilt
Max. Resolution	1024x768 NI 85Hz flicker-free
Features	Multi-sync, auto-sizing, full-scan, VESA power saving, DDC1/2B PnP, self-test pattern, universal power supply
Control System	Digital, with LED indicator or OSD
Low Radiation	MPRII
Power	240V ac
Dimensions	368x398x405mm (WxHxD)

order code

1-2 price each

3+

**CH48694**

**£119.99 £117.99**

## TATUNG C7T

## 17" Digital Monitor

A multi-frequency monitor which automatically adjusts its vertical and horizontal scanning frequencies to those of the host computer. The unit provides true colours, a high contrast range, vivid images and sharp text over the entire display area with accurate geometry adjustments.

- 0.28mm dot pitch • Full scan capability
- 17" (15.9" visible) flat-square colour monitor with excellent front of screen performance
- High resolution with high-refresh rate up to 1280x1024 at 60Hz
- All functions can be conveniently controlled by On Screen Display
- DDC 1/2 B PnP for simplified installation and configuration



4 Year  
on-site Warranty

order code

**CH48695**

1-2 price each

3+

**£186.65 £183.99**

For full technical data, see  
INFO CS03810 on page 412  
of CPC's Catalogue.



## PC Power Supply Card

- Universal power supply for peripherals like loudspeakers, modems, scanners, external drives, etc
- Maximum output current 2.2A
- Polarity switchable
- Power saving. Peripherals are automatically switched off with the PC
- Selectable output voltage 3, 4.5, 5, 6, 7.5, 9 and 12V dc
- Multi-outlet power cable, 2 jacks 2.5 and 3.5mm, 2 DC plugs 2.1 x 5 and 2.5 x 5.5mm
- Connected to PC power supply
- Includes internal power cable
- Dimensions 167 x 80 x 37mm



order code

**CH09802** £6.74 £6.09

1-4 price each 5+

## PC External Data Leads

A range of cables connected 1-1 for use as extensions, patch leads or for connecting equipment to switch boxes



order code	description	length	1-4 price each	10+
<b>CH48349</b>	9 way D plug to 9 way D socket	5m	£6.92	£6.43
<b>CH10374</b>	15 way high density plug to socket	5m	£7.98	£7.18

## Amstrad/IBM-Compatible VGA Extension Lead

### Make/Model/Extension

Amstrad PC2000 Series Monitor, IBM PC/XT or PC/AT with VGA Card

PS/1 or PS/2 Monitor (signals) Length: 2 metres

Cable Type: 15-way Hi-D' plug to socket



order code

**CH01664** £2.80 £2.42

1-4 price each 10+

## PC Printer Leads

25-way 'D' plug to 36-way. Centronics interface leads.

Computer to printer with parallel centronics interface.

Leads may not be supplied with thumbscrews as pictured

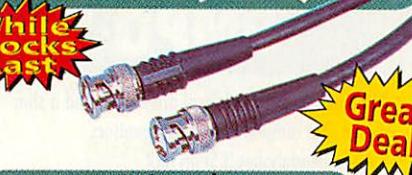


order code	length	1-4 price each	10+
<b>CH01343</b>	5m	£4.19	£4.17
<b>CH01342</b>	3m	£2.90	£2.30

## BNC Patch Leads (2m)

- BNC plug at each end
- 2m in length
- RG-62 cable
- Strain reliefs fitted on each connector
- Suitable for use in datacommunications applications

While Stocks Last



Great Deal

order code  
**SB00508**

1-9 price each £1.55 10+ £1.39

## Gold Plated Computer Leads

- Gold plated connectors with black leads
- Double Shielded Cable
- Thumb screw connection



description order code 1-9 price each 10+

1.8m AT Keyboard Extension Lead (M/F)	<b>CH63255</b>	£1.16	£1.05
1.8m PS/2 Keyboard Extension Lead (M/F)	<b>CH63256</b>	£1.76	£1.60
3m Serial Laplink Cable Dual Ended	<b>CH63257</b>	£4.78	£4.35
3m Parallel Laplink Cable	<b>CH63258</b>	£3.52	£3.20
1.8m CGA Monitor Extension Lead (M/F)	<b>CH63262</b>	£2.34	£2.13
1.8m VGA Monitor Extension Lead (M/F)	<b>CH63263</b>	£2.82	£2.56
2m Parallel Printer Cable	<b>CH63276</b>	£2.80	£2.55
3m Parallel Printer Cable	<b>CH63277</b>	£4.70	£4.27
2m D25 M/M Straight Through Lead	<b>CH63282</b>	£3.12	£2.84
3m D25 M/M Straight Through Lead	<b>CH63285</b>	£4.10	£3.73

## IEC Mains Leads

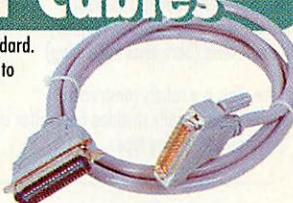
10A IEC mains leads of varying lengths.



order code	length	connectors	1-4 price each	5+
<b>SB01148</b>	2m	Black IEC to 13A	£1.25	£1.10
<b>SB01151</b>	3.5m	Black IEC (right angle) to bare end	69p	59p
<b>SB01147</b>	3.5m	Grey IEC to bare end	69p	59p

## Bi-Tronic/IEEE-1284 Parallel Printer Cables

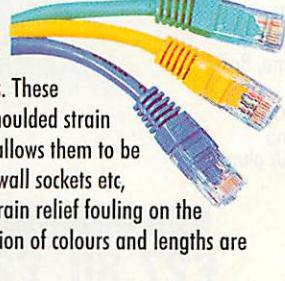
Parallel printer cables compliant with IEEE-1284, Bi-tronic standard. Available in three different lengths with 25-way D plug (male) to 36-way Centronics plug (male).



order code	1-4 price each	5+
<b>CH39717</b>	£3.39	£3.21
<b>CH39718</b>	£4.99	£4.75
<b>CH39719</b>	£7.51	£7.15

## Cat 5 RJ45 Low Profile Patch Cables

A range of



RJ45 to RJ45 UTP, Category 5 patch cables. These cables have moulded strain reliefs which allows them to be plugged into wall sockets etc, without the strain relief fouling on the plate. A selection of colours and lengths are available.

LENGTH	BLUE	GREEN	GREY	RED	YELLOW	1-4 PRICE EACH	5+
0.5m	<b>CH39651</b>	<b>CH39662</b>	<b>CH39673</b>	<b>CH39686</b>	<b>CH39723</b>	96p	87p
1m	<b>CH39652</b>	<b>CH39663</b>	<b>CH39675</b>	<b>CH39687</b>	<b>CH39698</b>	£1.14	£1.01
2m	<b>CH39653</b>	<b>CH39664</b>	<b>CH39676</b>	<b>CH39688</b>	<b>CH39699</b>	£1.50	£1.31
3m	<b>CH39654</b>	<b>CH39665</b>	<b>CH39678</b>	<b>CH39689</b>	<b>CH39700</b>	£1.82	£1.59
4m	<b>CH39655</b>	<b>CH39666</b>	<b>CH39679</b>	<b>CH39690</b>	<b>CH39701</b>	£2.18	£1.90
5m	<b>CH39656</b>	<b>CH39667</b>	<b>CH39680</b>	<b>CH39691</b>	<b>CH39702</b>	£2.52	£2.19
6m	<b>CH39657</b>	<b>CH39668</b>	<b>CH39681</b>	<b>CH39692</b>	<b>CH39703</b>	£2.96	£2.62
7m	<b>CH39658</b>	<b>CH39669</b>	<b>CH39682</b>	<b>CH39693</b>	<b>CH39704</b>	£3.28	£2.91
10m	<b>CH39659</b>	<b>CH39670</b>	<b>CH39683</b>	<b>CH39694</b>	<b>CH39705</b>	£4.41	£3.84
15m	<b>CH39660</b>	<b>CH39671</b>	<b>CH39684</b>	<b>CH39695</b>	<b>CH39706</b>	£6.38	£5.55
20m	<b>CH39661</b>	<b>CH39672</b>	<b>CH39685</b>	<b>CH39696</b>	<b>CH39707</b>	£8.60	£7.48

## MAXXTRO Active 50W PMPO Speakers

- Compact speakers with oval drive units and a slim design that complements most monitors
- Built-in headphones 3.5mm jack
- 2 x 3.5" full range drivers
- Power and volume controls
- 50W PMPO, 120 - 15KHz frequency response
- Each speaker measures 185x75x121mm (HxWxD)



order code 1-9 price/pair 10+  
**CH43420 £5.51 £5.08**

## 30W PMPO Indiana Speakers (non-amplified)

### Technical Data

- 30W PMPO • 4 Ohms
- Dimensions (HxWxD): 215x90x140mm
- Weight: 690g per speaker (approx)

**FUJITSU**

ONLY  
£5.15  
PER PAIR  
CD not included.

order code  
**SB00551**

## 60W PMPO Indiana Speakers (non-amplified)

### Technical Data

- 60W PMPO
- 4 Ohms
- Dimensions (HxWxD): 225x147x160mm (cabinet)
- Bass Speaker Diameter: 100mm
- Weight: 1.5kg per speaker (approx)
- Includes lead (bare ends to DC plug)

**FUJITSU**

ONLY  
£8.25  
PER PAIR  
CD not included.

order code  
**SB00550**

## 240W PMPO Speaker System

Model Nicole SD983

### Technical Data

- Frequency Response 50Hz to 20KHz
- Controls On/Off/Volume, Bass, Treble
- Dimensions - WxHxD 13.5 x 19.5 x 17cm
- Input via RCA phono
- Power Mains via IEC320 'T' adaptor



order code  
**SB01389**

1-2 price/pair 3+  
**£12.99 £11.99**

## Multimedia Speakers

Model : Quickshot Soundmate 4

### Features:

- Output power of 2 Watt (RMS) / channel
- Frequency response: 100Hz - 14KHz
- Power, volume, balance and bass & treble boost switches
- Powered by 4 x 'C' batteries or 6Vdc adaptor (not included)
- Dimensions: 100x160x105 (WxHxD)

While Stocks Last



order code  
**SB01401**

ONLY

£1.95  
per pair

## Passive 4W RMS Speakers

Low cost passive computer speakers (pair) ideal for system builders. Each speaker is rated at 2W RMS (total 4W) up to 16W peak each. The units are magnetically shielded.

INFO For full technical data, see CS00440 on page 353 of CPC's catalogue

order code  
**CH01605**

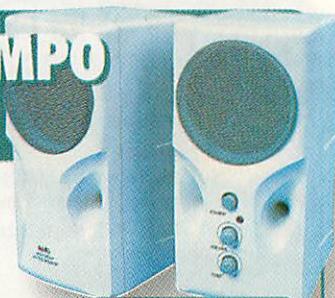


1-4 price/pair 5+  
**£3.13 £2.86**

## Active 100W PMPO Speakers

Powerful speakers in a compact design.

- 100W PMPO • 3" full-range drivers
- Magnetically shielded • LED power indicator
- Air woofer design enhances sound • Low distortion
- Supplied with all leads, power adaptor and instructions



order code

**CH09736**

1-4 price/pair 5+  
**£14.07 £12.13**

## 520W PMPO Speaker System

Model Nicole SD638s

- 3D effect switchable from front panel
- Ported cabinet
- Line out available on rear



### Technical Data

- Frequency Response 40Hz to 20KHz
- Speaker Unit 3" and Tweeter
- Controls On/Off/Volume, Bass, Treble
- Dimensions - WxHxD 16 x 25 x 21cm
- Input via RCA phono
- Power Mains via 13A plug

order code  
**SB01387**

1-2 price/pair 3+  
**£27.80 £25.75**

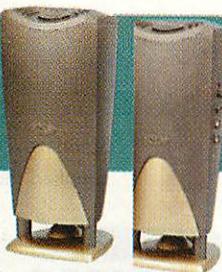
## 580W PMPO Speaker System

Model Nicole SD9922

A stylish 'Art Deco' speaker system which has been designed to provide '360°' sound by having downward pointing speaker units to disperse the sound. A microphone input and headphone output (all 3.5mm) are available.

**Technical Data**

Frequency Response 20Hz to 20KHz  
Controls On/Off, Volume, Bass, Treble  
Dimensions - WxHxD 14 x 33 x 15cm  
Input via 3.5mm stereo jack plug  
Power Mains 240V via 13A plug



order code  
**SB01375**  
price/pair  
**£61.99**

## Internal Micro Speaker 60W PMPO

Powerful mini amplifier and speakers with subwoofer which is designed to fit inside the PC case. Only for use on systems that already have a soundcard installed.

- High efficiency stereo amplifier and speakers
- PMPO 60W micro-speaker
- 4" subwoofer included
- Built-in two high density Gauss magnet speakers
- Fits exactly into 5.25" bays
- Can be angled 15 degrees left or right
- Front panel volume control, loudness on/off and headphone jack
- Power indicator LED
- Supplied with mounting bracket for speaker cable to audio card and screws



**Technical Data**

Dimensions (HxWxD) 41x146x154mm  
Input Connection 3.5mm stereo jack on fly lead  
Power Connection Standard PC IDE power connection with pass-through  
Output Connection 3.5mm stereo jack socket (headphones)

order code

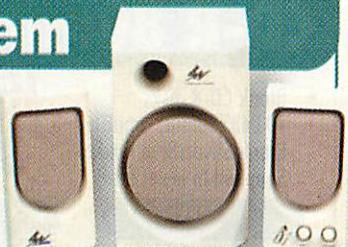
**CH09759**

1-4 price each 5+

**£13.45 £12.80**

## 480W PMPO Subwoofer Speaker System

Add those 'deep' sounds to your games or portable audio with this subwoofer system. The AC power is obtained via a 'T' tap from the back of the PC's IEC320 power cable, meaning that a separate 13A plug is not required.



**Technical Data**

Output - RMS 6 Watts  
Frequency response 200Hz to 20KHz  
Drive Unit 3"  
Controls On/Off, Volume, Bass  
Dimensions - WxHxD 10 x 19 x 10cm  
Input via 3.5mm stereo jack plug  
Power Mains 240V via 'T' lead

order code

**SB00818**

price each

**£28.99**

## 480W PMPO Subwoofer Speaker System

Model Nicole SD522

A subwoofer speaker system with a built-in '3D' effect function which is switchable from the front panel. The speaker grilles on the satellite speakers are removable.

**Technical Data**

Frequency Response 20Hz to 20KHz  
Drive Unit Tweeter + 2 3/4"  
Controls On/Off, Volume, Bass, Treble  
Dimensions - WxHxD 11 x 17 x 17cm  
Input via 3.5mm stereo jack plug  
Power Mains 240V via 13A plug



**Subwoofer**

4"  
-  
17 x 25 x 28cm  
-  
-

order code  
**SB01386**  
1-2 price each 3+  
**£35.99 £33.99**

## 650W PMPO Subwoofer Speaker System

The speakers are of a cylindrical design making a pleasant change to the more usual 'rectangular' boxes as in most other systems. The AC power is obtained via a 'T' tap from the back of the PC's IEC320 power cable, meaning that a separate 13A plug is not required.



**Technical Data**

Satellite  
Output - RMS 10 Watts  
Freq. response 150Hz to 20KHz  
Drive Unit 3"  
Controls On/Off, Volume, Bass, 3D  
Dims - WxHxD 11 x 29 x 11cm  
Input via 3.5mm stereo jack plug  
Power Mains 240V via 'T' lead

**Subwoofer**

15 Watts  
40Hz to 200Hz  
5"  
-  
20 x 29 x 22cm  
-  
-

order code  
**SB00817**

1-4 price each 5+  
**£40.99 £35.99**

## 580W PMPO Subwoofer Speaker System

Model Nicole SD360 + SD992

A subwoofer speaker system which has been designed to provide '360°' sound by both the satellite and subwoofer having downward pointing speaker units to disperse the sound. This has also allowed the speakers to look rather different than most others in the marketplace. Two microphone inputs are available as well as a headphone output (all 3.5mm).



**Technical Data**

Satellite  
Frequency Response 20Hz to 20KHz  
Drive Unit 3"  
Controls On/Off, Volume, Bass, Treble  
Dimensions 14.5 (dia) x 11cm  
Input via 3.5mm stereo jack plug  
Power Mains 240V via 13A plug

**Subwoofer**

4"  
-  
18 (dia) x 29cm  
-  
-

order code  
**SB01385**  
1-2 price each 3+  
**£61.99 £58.65**

## 3.5" Drive Head Cleaning Kit

Simply apply approx. 5 drops of cleaning fluid and insert into drive for 10-15 seconds.

order code

CH01045



1-9 price each 10+

£1.13 £1.04

## Zip Disk



Standard Zip disk (100MB) supplied individually.

order code

CH44804

1-3 price each 4+

£7.75 £7.42



## CD-ROM Lens Cleaner

A CD-ROM laser lens cleaning disk. The CD is simply inserted into the drive and a program (for DOS, Win3.1/95) is run whilst the lens is cleaned.

order code

CH09930

1-4 price each 5+

£2.23 £2.08



FROM ONLY

£7.45

## Multimedia PC Cleaning Kit

### Contents

- 3.5" disk drive head cleaning disk
- CD-ROM laser lens cleaner
- 5 x foam swabs
- CD-ROM cleaning cloth
- 12ml head cleaning fluid
- Lint free cloths x 15
- 20ml pump spray - computer, CD cleaning solution
- Mini keyboard/case vacuum cleaner with accessories (requires 4 x AA, not supplied)

Supplied in a tough plastic carry case

order code

CH09927

1-4 price each 5+

£8.14 £7.45



## CD-Recordable (CD-R)

Incredible Value

Blank CD-R disks - supplied by a leading manufacturer. The disks are supplied in jewel cases, and have 650Mb (74 min) capacity. Supplied individually. **Note** Colour may vary

order code

CH35117

1-4 price each 5+

99p 90p



## TDK CD-R

Recordable compact disk by TDK. 74 minutes with a capacity of 650Mb. Supplied in a jewel case. Disk is pre-printed with an area for labelling.

order code

CH09233

ONLY

£1.43



## Dysan CD-R



Blank CD-Recordable discs by Dysan which offer the popular gold write once CD format. Can be read in any CD-ROM drive.

- 650Mb (74 min) capacity
- Supplied in jewel case

**Note** Colour may vary

order code

CH35116

1-4 price each 5+

87p 80p

Great Price

## 10 Pack Formatted HD Disks

- 3.5" double side - high density.
- DOS formatted to 1.44MB
- 100% certified and tested
- 100% virus free
- Supplied in a card box with label

order code

CH09884

1-4

price/pack (10)

5+

£1.95

£1.80

FROM ONLY

£1.80



## CD-R 80min

- Blank CD-R disks
- 700Mb (80min) capacity
- Blank Silver/Blue media
- Supplied in jewel case

order code

SB01243

1-9

price each

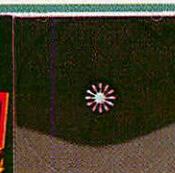
10-99

100+

£1.25

99p

89p



## 2Mb Unformatted Floppy Disks

Grade 'A' Floppy Disks - pack of 50

order code

SB00611

ONLY

£3.99  
per pack  
of 50



While  
Stocks  
Last

FROM  
ONLY

63p  
per disk

## CD-R Disks

Silver/blue CD-R disks branded 'Vertex' and supplied in individual jewel cases. They are available in either 74 or 80 minute versions, both types in retail packs of 10.



order code

SB01379

description

1-19 price/pack 20+

SB01380

CD-R 74 minute/650Mb

£6.99 £6.30

SB01380

CD-R 80 minute/703Mb

£7.59 £6.99

FROM  
ONLY

55p  
per disk

## CD-R/RW (Unbranded) Media



- 650Mb (74min) or 700MB (80min) discs
- CD-R guaranteed x8 speed, CD-RW guaranteed x4 speed
- Blank Silver/Blue Media (except white printable disks)
- Supplied in either a jewel case or on a spindle

description	quantity	order code	1-4	price/pack	5+
<b>CD-R</b>					
74 min Jewel Case	1	CH54527	69p	67p	
74 min Jewel Case	10	CH73007	£6.80	£6.60	
74 min White Printable	1	CH73008	93p	90p	
74 min White Printable	10	CH73009	£8.99	£8.72	
74 min Spindle	50	CH66557	£29.99	£27.50	
80 min Jewel Case	1	CH54529	80p	78p	
80 min Jewel Case	10	CH73010	£7.50	£7.28	
80 min Spindle	50	CH66558	£34.00	£32.98	
<b>CD-RW</b>					
74 min Jewel Case	1	CH54531	£2.19	£2.12	
74 min Jewel Case	10	CH73011	£21.00	£20.37	

Excellent  
Value

## CD-ROM Drawer

FROM  
ONLY

£5.51



CD Rom Drawer with a capacity of 20CDs. Drawers interlock to allow stacking. Each drawer is lockable and is supplied with two keys.

### Technical Data

- Dimensions (LxWxH) 325 x 170 x 151mm

order code

1-4 price each 10+

**CH01587 £5.63 £5.51**

## CD Tower

Each tower can store up to 20 CD ROMs or audio CDs in their jewel cases. Made from durable plastic, towers can be stacked vertically or horizontally, as required. Can be desk or wall mounted.

### Technical Data

Dimensions (LxWxH) 120x140x314mm

order code

1-4 price each 5+

**CH09721 £2.75 £2.50**



CARE-FREE  
SECURITY KITS™

## Screw-On Lock Kit

A theft deterrent kit for computers and office equipment with case or lid screws. This bracket is fixed to the casing by the Super Bond adhesive. A 2m, coated steel cable threads through the brackets and is secured to a desk (or permanent feature of the building) by a padlock and "keyhole" bracket.



INFO

For full technical data see CS00004 on page 489  
of CPC's Catalogue

order code

**CH00829**

1-4 price each 5+

**£11.70 £9.65**

CARE-FREE  
SECURITY KITS™

## Super Bond Lock Kit

A heavy duty kit designed to secure computers, peripherals and other office equipment.

Contents: 1.5m cable,  
3 x metal plates,  
40mm padlock with 2 keys,  
"keyhole" bracket and  
Super Bond adhesive.

FROM  
ONLY

£11.99



order code

**CH00828**

1-4 price each 5+

**£13.73 £11.99**

## PC Expansion Slot Covers



order code

**CH00910**

1-24 price/pack 25+

**71p 61p**

CARE-FREE  
SECURITY KITS™

## Lock Slot Kit

A security kit designed specifically for PC/XT/AT/PS2 and compatibles. The system uses a vacant expansion slot to provide the strongest security possible. The kit contains a Lock Slot™, which is fitted in place of the original blank slot, and a metal plate is fixed to the monitor by Super Bond adhesive. A coated steel cable is then threaded through both of these and secured by a padlock to a desk or permanent feature of the building. Due to the ingenious design of the locking system, neither end of the cable can then be removed until the padlock is unlocked.



Contents: 2m cable, Lock Slot™, metal plate, 40mm padlock with 2 keys, "keyhole" bracket and Super Bond adhesive

order code

**CH00907**

1-4 price each 5+

**£14.61 £14.24**

CARE-FREE  
SECURITY KITS™

## Year 2000 RTC Card

Model: Millennium YKIK-RTC/M2000

### Features

- Onboard Y2K compliant Dallas Real Time clock with 10 year battery life
- Onboard Firmware resolves all Y2K related BIOS problems
- NSTL, CE, FCC certified and Microsoft accredited
- Compatible with all PCs using Intel CPUs from 286 onwards
- Compatible with all operating systems
- Corrects HP Vectra & Award V4.5 BIOS problems
- Ensures correct rollover with the PC switched on or off
- Onboard or front panel LED indication of correct operation
- Requires free 8 bit ISA slot



### Note

This card will fix all relevant Y2K hardware problems, it will not fix non-compliant software.

order code

**SB00825**

1-4 price each 5+

**£57.00 £55.99**

## ISA/PCI POST Diagnostic Cards

POST (Power-On Self Test) routines are performed by a PC's BIOS each time the machine is switched on. Most errors caused by system components can be detected at this stage. The card (PCI or ISA version) is simply inserted into a spare slot and the POST code is displayed as the machine boots up. At the point where the error occurs, the displayed code can be checked to see what the fault is. The cards are supplied with manuals which list the POST codes for most of the popular BIOS manufacturers.

Alternatively, most motherboard manufacturers list POST code information in the board's manual or on their website.

order code	card type	1-4	price each	5+
<b>CH43088</b>	PCI	£24.49	£22.45	
<b>CH43090</b>	ISA	£18.45	£16.99	

## ISA 2 x Serial, 1 x Parallel I/O Card

- 2 x hi-speed UART with FIFO/Hi-IRQ(3-15)/Hi-COM(1-8)
- 1 x SPP with FIFO/Hi-IRQ(3-15)/Hi-LPT(1-6)
- RS232: 2 x ST-16C552 UARts supporting Hi-IRQ and Hi-I/O address
- UART1: I/O address COM1/2/3/4/5/6/7/8, IRQ location 3/4/5/7/8/10/11/12/15
- UART 2: as 1
- Printer port: 1 x SPP, bi-directional with FIFO ST-78C34/36, supports Hi-IRQ and Hi-I/O address
- Print Port1: I/O address LPT1/2/3/4/5/6, IRQ location 3/4/5/7/9/10/11/12/15

order code	1-4	price each	5+
<b>CH36590</b>	£20.25	£18.55	

## PCI 32-bit 2x Parallel Port I/O Card

Dual PCI bus 32-bit PnP bi-directional parallel port with 83-FIFO.

- ST-78C34 83 FIFO
- PnP BIOS support
- Supports LPT1/2/3
- Under DOS acts as LPT port
- Under Win 95/NT acts as LPT port
- Supports addresses LPT1:3BC, LPT2:378, PLT3,278

order code	no. of ports	1-4	price each	5+
<b>CH43032</b>	2 x Parallel Port	£41.99	£36.99	

## VGA-2-PAL Gamer

- Converts a VGA signal into composite video and S-video, allows PC output to be displayed on a TV or VCR
- Works with any 640x480 screen mode
- Pure hardware solution, requires no drivers, works with any operating system
- Works without monitor (if required)
- Simultaneous display on monitor and television
- Output on phono connector (composite PAL video) or s-video connector
- Unit is equipped with overscan-underscan mode and 4 anti-flicker modes
- Fits in standard ISA slot (8 or 16 bit)

**Contents:** interface card, VGA interconnect cable, 2m phono to phono lead, detailed instruction sheet

order code	price each
<b>CH51391</b>	£27.67

## Multi Capture Card

- PCI single chip video capture card
- Supports NTSC/PAL/PAL M/PAL N/SCAM video formats
- Image resolutions up to 768x576 (PAL), 640x480 (NTSC)
- No VGA feature connector and video frame buffer required
- Supports 4 video composite input connectors
- Software supplied: a) New Soft Video Works V4.1 for Video Capture and non-linear Video Editing b) PC Security for Surveillance c) iPhone 5 demo version for Video Conference
- Supports Windows 95/98
- Contents: Capture Card, CD-ROM software



order code	1-4	price each	5+
<b>CH65158</b>	£39.74	£36.13	

## TV Tuner, FM Radio and Video Capture Card

- 125 channel cable/antenna ready
- PCI TV tuner (PAL 1) to display live TV
- Live FM radio broadcast receiver
- Motion video capture in standard AVI format
- High quality still video image capture up to full screen
- Wireless remote control unit included
- 16 channel simultaneous surf feature
- Sizeable and scaleable video window up to full screen
- AV and S-Video inputs for external video sources
- Video conference ready with MS Netmeeting (included)
- Contents: PCI Tuner Card, Audio Cable, FM Antenna, Remote Control, Installation Manual, CD ROM Software (Includes: Flyvideo 98, VideoLive Mail, MS Netmeeting)
- Min. Sys. Req.: P133, 16MB RAM, 10MB HDD, Soundblaster Compatible Soundcard, CD-ROM Drive, Windows 95/98, NT4, web TV



order code	1-4	price each	5+
<b>CH75581</b>	£53.85	£50.00	

## SiS 2D/3D AGP Accelerator Card

An accelerator card which uses the 'SiS 6326AGP' chipset and 8Mb of memory. High performance 2D graphic and Video accelerator. High performance 3D setup Engine supporting 3DPRO with a fill rate of 40M pixel/sec.

### Minimum requirements

AGP bus 1.0 compliant system, with Pentium processor. Windows 3.1, OS2, Windows 95, Windows 98 or NT 3.5/4.0/5.0.

### Technical Data

Resolution	Colour Depth	Refresh Rates
640 x 480	up to 32 bit	up to 85Hz NI
800 x 600	up to 32 bit	up to 85Hz NI
1024 x 768	up to 32 bit	up to 85Hz NI
1280 x 1024	up to 64K colours	up to 85Hz NI
1600 x 1200	up to 256 colours	65Hz NI

Game API Support Direct 3D, Open GL



order code	price each
<b>SB00810</b>	£23.50

## SiS 2D/3D AGP Accelerator Card + TV Output

An AGP accelerator card which uses the 'SiS 6326DVD' chipset and 8Mb (not expandable) of SDRAM memory. The built-in TV output can use either RCA (composite video) or S-VHS connectors. Built-in motion compensation support for DVD.

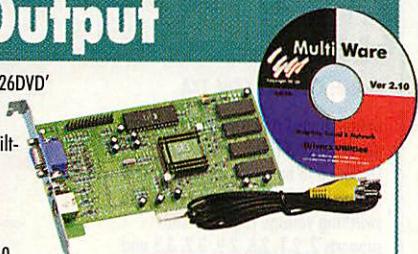
### Minimum requirements

AGP bus 1.0 compliant system, with Pentium® processor. Windows 3.1, OS2, Win 95, Win 98 or NT 3.5/4.0

**Contents** VGA Card drivers on CD ROM and RCA-RCA lead.

### Technical Data

Resolution	Colour Depth
640 x 480	up to 32 bit
800 x 600	up to 32 bit
1024 x 768	up to 64K colours
1280 x 1024	up to 64K colours
1600 x 1200	up to 256 colours



order code

**SB00811**

price each

**£29.99**

## InnoVISION S3 Savage 4 Pro Accelerator Cards

These AGP accelerator cards use the 'Savage 4 Pro' chipset from S3 to provide up to the minute 128-bit single cycle architecture, 2D/3D graphics processing power. Two versions are available PCI & AGP. Motherboards with a 2x4x AGP slot can now be run to their true potential. Hardware accelerated MPEG-2 and high quality, motion compensated DVD playback are also supported.

### Both PCI/AGP feature

- S3TC texture compression
- 32 bit true colour rendering
- 140M pixel/sec trilinear fill rate
- Specular lighting and diffuse shading effects
- Capable of 8M triangles/sec
- Contrast, hue, saturation, brightness and gamma controls

### Minimum requirements:

for the AGP: AGP bus 4x/2x compliant motherboard, with Pentium® processor.  
for the PCI:PCI bus compliant motherboard, with Pentium® processor.

FROM  
ONLY

**£33.25**

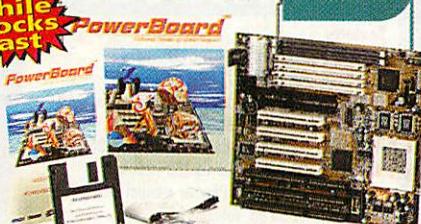
### Technical Data

Resolution	Colours	order code	description	price each
640 x 480	16 million	<b>SB01450</b>	AGP 32MB	<b>£51.85</b>
800 x 600	16 million	<b>SB01451</b>	AGP 16MB	<b>£38.55</b>
1024 x 768	16 million	<b>SB01452</b>	AGP 8MB	<b>£33.25</b>
1280 x 1024	16 million	<b>SB01505</b>	PCI 32MB	<b>£51.00</b>
1600 x 1200	16 million	<b>SB01504</b>	PCI 16MB	<b>£39.99</b>
1920 x 1440	256,000			<b>£37.99</b>

## Socket 7 AT Motherboard

• Intel 430TX PCI chipset  
 • Intel Pentium® processor operating up to 233MHz and MMX (P54C/P55C), AMD K5, K6, Cyrix 6x86MX, 6x86L, M2 with 321 ZIF socket 7 and scalability to accept faster processors  
 • Supports up to 256MB DRAM (minimum 8MB) or FP, EDO or SDRAM  
 • 4 x 72 pin SIMM slots, 2 x 168 pin DIMM slots  
 • Onboard burst/pipelined burst synchronised cache supported  
 • 4 x PCI slots, 3 x ISA slots, 2 x IDE devices  
 • Ultra DMA 33  
 • Supports 1 x floppy, 1 Parallel (EPP, ECP port) and 2 Serial Ports (16550 fast UART compatible)  
 • Both PS/2 and AT style keyboard connectors supported (PS2 connector not supplied)  
 • CPU hardware sleep and SMM  
 • USB, IrDA/ASK IR port and modem ring and wake up suspend  
 • Contents: Manual, CD Driver Disc, 1 x floppy drive cable, 1 x HDD cable, Serial and Parallel back plate

While  
Stocks  
Last  
PowerBoard



ONLY

**£19.99**

order code

**SB01298**

## Mighty Banshee 2D/3D AGP Accelerator Card

An accelerator card which uses the 'Banshee Voodoo 2' chipset (3dfx) and 16Mb of memory to provide outstanding results whether playing games or other graphic intensive software.



**2D Features** 100MHz 128-bit GUI accelerator.

Hardware polygon generation and line drawing engine.

**3D Features** 100M pixel fill rate, 100M texels fill rate. Capable of 4M triangles/sec. On-Chip texture cache unit.

### Minimum requirements

AGP bus 1.0 compliant system, with Pentium processor. Windows 95 OSR2.1 with USB supplement installed. Windows 98 or NT 4.0 with Service pack 3.

### Technical Data

Resolution	Colour Depth	Refresh Rates
640 x 480	up to 32 bit	60,75,85,100,120
800 x 600	up to 32 bit	60,75,85,100,120
1024 x 768	up to 32 bit	60,70,75,85,100,120
1280 x 1024	up to 32 bit	60,75,85,100,120
1600 x 1200	up to 32 bit	60,65,70,75,85,100
1900 x 1440	up to 32 bit	60

order code

**SB00808**

price each

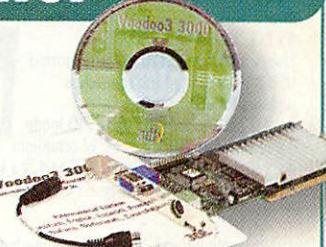
**£49.99**

## 3DFx Voodoo 3 AGP Video Accelerator

**Model:** 3DFx Voodoo 3 2000 and 3000

### Features

- Uses the 'Voodoo 3' 128bit chipset
- 16MB 166MHz SDRAM onboard memory
- RAMDAC of 300MHz for 2000, RAMDAC of 350MHz for 3000
- Connectors on rear: 2000 - SVGA out, 3000 - SVGA out and Video out
- Digital Video Input connector on PCB
- Requires AGP slot
- Drivers for Win 95/98/NT 4.0



**Contents** Voodoo Card, Driver on CD-ROM, Manual

### Technical Data

Resolution	Colour Depth
640 x 480	up to 16.7M colours @ 160Hz
800 x 600	up to 16.7M colours @ 160Hz
1024 x 768	up to 16.7M colours @ 120Hz
1280 x 1024	up to 16.7M colours @ 100Hz
1152 x 864	up to 16.7M colours @ 120Hz

FROM  
ONLY

**£70.99**

order code

**SB01376** Voodoo 3 2000

1-2 price each

**£77.99**

3+ price each

**£70.99**

**SB01377** Voodoo 3 3000

**£112.99**

**£102.99**

## 40-Way Internal IDC Plug to IDC Socket Extension Ribbon Lead

IDC plug to IDC socket internal ribbon lead which is designed to attach to the existing computer lead and extend the length.

- Enables internal devices to be positioned at a more convenient place within the PC case
- Suitable for Hard Disk Drive, CD-ROM or other E-IDE controlled device
- 30cm in length



order code

**CH62479**

1-4

price each

**95p**

5+

**77p**

## Socket 7 AT Motherboard

Model Powerboard P586VX

Features

- CPU Support (Socket 7) Intel Pentium® MMX166 - 233MHz, Pentium® 75 - 200MHz AMD K6 PR166 - PR233, K5 PR75 - PR200 Cyrix/IBM 6x86 M1 P120 - P200, 6x86L M2 P120 P233
- Manual jumpers for CPU set up
- TX chipset Voltages from 2.8 - 3.52V and clock speed from 50 - 83MHz
- Uses the Intel SB82437VX chipset
- Onboard cache of 512kb Pipelined Burst SRAM
- 1xDIMM (3.3V SDRAM/EDO unbuffered) and 4xSIMM (5V FPM/EDO) sockets available supporting up to 128MB of RAM. Note only 1xDIMM & 2xSIMM at once
- Award Bios • 4 x PCI, 3 x ISA slots • 2 x IDE ports supporting up to PIO mode 4
- 1 x 9 way and 1 x 25 way Serial ports, 1 x Parallel port, 1 x AT Keyboard port
- Power connector is AT type • Dimensions: 220 x 220mm

Contents Drivers for motherboard, booklet for motherboard, 1 x floppy drive cable & 1 x hard drive cable, Serial & Parallel backplate

order code

**SB01301**

ONLY

**£20.60**

## Slot 1 ATX Motherboard

Model: Crusader P2 XLX

Features

- CPU support (slot 1) in SEC package, Intel Pentium® II 233MHz to 300MHz
- Uses the Intel FW82443 AGP LX chipset
- 3 x DIMM (3.3V SDRAM/EDO/FPM unbuffered) supporting up to 348MB of RAM
- Award BIOS, NCR810 SCSI compatible
- 4 x PCI, 3 x ISA and 1 x AGP slot
- Floppy interface, LS120 & Zip supported
- USB & IR supported (no connectors supplied for IR)
- 2 x IDE ports supporting up to PIO mode 4 and UDMA33 support • PC97 compliant
- 2 x 9 way serial ports, 1 x parallel port, 2 x USB, 1 x PS2 keyboard and PS2 mouse port
- WOL Wake-on-Lan connector • Power connector is ATX type • Dimensions: 305 x 210mm

Contents

Drivers for motherboard, booklet for motherboard, 1 x floppy drive cable and 1 x hard drive cable and retention clip

order code

**SB01337**



price each

**£22.65**

**Great Value**

## Slot 1 LX Motherboard

Features

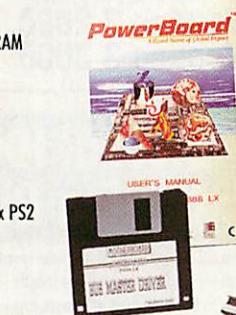
- CPU Support (Slot 1) Intel Pentium® II 233MHz to 333MHz
- Uses the Intel FW82443 AGP LX chipset
- 3 x DIMM (3.3V SDRAM/EDO/FPM unbuffered) supporting up to 348MB of RAM
- Award BIOS
- 4 x PCI, 3 x ISA & 1 x AGP slot
- 2 x IDE ports supporting up to PIO mode 4 and UDMA33 support
- Floppy interface, LS120 supported
- USB & IR supported (no connectors supplied)
- 2 x 9 way serial ports, 1 x parallel port, 1 x PS2 keyboard & PS2 mouse port
- Power connector is ATX type
- Dimensions: 350 x 190mm

Contents

Drivers for motherboard, booklet for motherboard, 1 x floppy drive cable and 1 x hard drive cable and retention clip

order code

**SB01293**



price each

**£23.65**

**While Stocks Last**

## Socket 7, ATX Motherboard

Model: Crusader C586 TXA

System board is equipped with a 321 pin ZIF socket (Intel socket 7).

Designed to be easily upgraded. The system board is also equipped with a switching voltage regulator that supports 2, 2.1, 2.8, 2.9, 3.2, 3.3 and 3.5V core voltages.

- Intel 82430TX PCI chipset
- Supports Intel Pentium® Processor with MMX technology 166/200/233MHz; P90-200MHz Cyrix 6x86L PRT50+ / PR166+, AMD K5 PR90-PR166, AMD K6 166-233
- Supports 8MB to 256MB • 2 x 168 pin DIMM slots, 4 x 72 pin SIMM slots
- 512kb pipeline burst cache • 3 x PCI slots, 3 x ISA slots, 1 shared PCI/ISA
- On board I/O: 1 x serial port, 1 x parallel port, 1 x PS/2 keyboard port and 1 x PS/2 mouse port
- Ultra DMA/33 • 2 x USB ports • Hardware supports SMI green mode • IrDA interface
- DMI interface to warn of motherboard problems • Modem wake-up, ring-on
- ATX power supply connector • Windows 95, Plug and play compatible

Contents Manual, Driver Disk, 1 x floppy drive cable, 1 x HDD cable, 5 x Jumpers

order code

**SB01295**

price each

**£20.60**

**While Stocks Last**

**Crusader**  
WHERE QUALITY REACHES

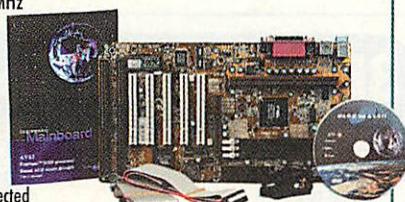


## Slot 1 ATX Motherboard

**Model:** Spacewalker AV61

- Supports Intel Celeron™ 266/66 - 433MHz
- Intel Pentium® II 233/66 - 433/66 and 350/100 - 500/100MHz
- Intel Pentium® III 450 - 500+ MHz
- Uses the VIA VT82C693A AGP chipset
- 3 x DIMM slots available supporting up to 768MB of PC100 RAM
- Award Bios
- 1 x AGP, 5 x PCI, 2 x ISA slots
- 2 x 9 way Serial ports, 1 x Parallel port, 2 x USB ports, 1 x PS2 Mouse
- 1 x PS2 Keyboard port, all onboard
- Floppy interface
- Up to 4 UDMA 33/66 hard drives can be connected
- Four power modes are available, Full on /Doze /Standby /Suspend
- Dimensions: 305 x 170mm

**Contents:** Drivers for motherboard, booklet for motherboard, 1 x floppy drive cable & 1 x UDMA66 hard drive cable



order code

**SB01459**

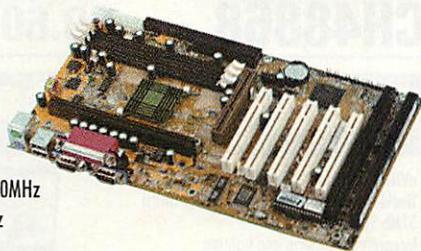
ONLY  
£61.99

## ATX Motherboard - Slot 1

**Model:** Spacewalker AB61

**Features:**

- Supports:
  - Intel Celeron™ 266 - 466MHz
  - Intel Pentium® II 233/66 - 333/66
  - Intel Pentium® II 350/100 - 500/100MHz
  - Intel Pentium® III 450 - 500+ MHz
- Uses the Intel 82443BX AGP chipset
- 3 x DIMM slots available supporting up to 768MB of PC100 SDRAM
- Award Bios • 1 x AGP, 5 x PCI, 2 x ISA slots
- 2 x 9 way Serial ports, 1 x Parallel port, 2 x USB ports, 1 x PS2 Mouse, 1 x PS2 Keyboard port, all onboard
- FDD and 2 x HDD (UDMA33) interfaces
- Four power modes are available, Full on /Doze /Standby /Suspend
- ATX power connector • Dimensions: 305 x 170mm



order code

**SB01456**

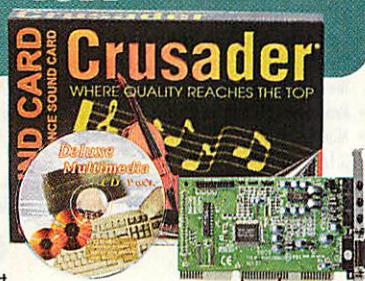
price each  
£78.50

**Contents:** Drivers for motherboard, booklet for motherboard, 1 x floppy drive cable & 1 x hard drive cable

## ALS100+ 3D ISA Sound Card

**Features**

- Uses Avance Logic ALS100 Plus+ chipset
- 20 voice FM synthesis
- Onboard amp, 2W per channel
- 8 & 16 bit, mono & stereo record and playback
- Sample rates to 48KHz • Full Duplex support
- MPU401 compatible interface • Wavetable connector
- Connectors on rear: Line Out, Line In, Mic In & Joystick/MIDI
- Compatible with the following standards:
  - Adlib, SB Pro, SB16, Waveblaster, General MIDI & Plug & Play
  - Windows 3.1, 95, NT 4.0 and DOS drivers



While Stocks Last

order code

**SB01244**

price each

**£6.20**

**Note** There is no IDE connector

**Contents** Soundcard and drivers/manual on CD ROM

## PGA370 ATX Motherboard with Sound & Graphics

**Model:** SpaceWalker ME17

**Features**

- CPU Support (Socket PGA370), Intel Celeron™ 266/66 to 500+/66 MHz, Intel Celeron™ 500+/100MHz
- Jumperless CPU set up
- Intel 810 chipset with integrated 2D/3D AGP graphics engine and AC97 sound controller (AD1881)
- 2 x DIMM (3.3V SDRAM unbuffered) sockets available supporting up to 512MB of RAM
- Award Bios V6.0 PG on Intel Firmware Hub with 4Mb flash core, supports Green PC, DMI and NCR SCSI BIOS
- 3 x PCI slots, 1 x AMR and 1 x UPT slot
- 2 x IDE ports supporting up to PIO mode 4 using UDMA 33/66
- 1 FDD port, LS/ZIP bootable
- 2 x 9 way Serial ports, 1 x Parallel port, PS2 mouse and keyboard, 2 x USB port and IR port compatible, VGA output, Game/MIDI port, Line in/out Mic in.
- Power connector is ATX type
- Dimensions: 244 x 170mm MicroATX type



order code

**SB01382**

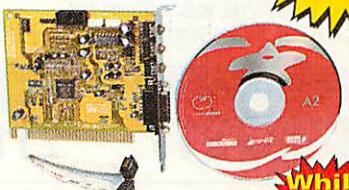
price each

**£77.50**

## SCV6 ISA Sound Card

ONLY

£5.15



While Stocks Last

**Features**

- Creative ViBRA 16XV VLSI 16 bit chip set
- Plug and play • Soundblaster 16 compatible
- Integrated frequency synthesizer
- Stereo enhancement support
- Dynamic filtering for audio playback and record
- Full duplex DMA enabling 8 and 16 bit data record and playback
- 5kHz to 48kHz variable sampling rate
- Built-in creative stereo enhancement

**Note** To be used only with 'Tomato' motherboards with 10 way socket

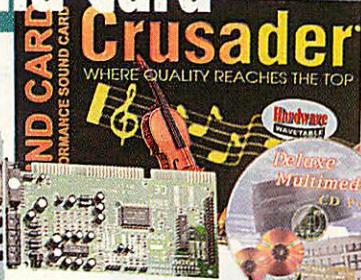
**Contents** ISA Soundcard, CD-ROM Disk, 10-pin flat cable

order code

**SB01251**

## ALS200 3D Wavetable ISA Sound Card

Crusader



While Stocks Last

**Features**

- Uses Avance Logic ALS200 chipset
- 20 voice FM synthesis
- Onboard hardware Wavetable
- 8 & 16 bit, mono & stereo record and playback
- Sample rates to 48KHz • Full Duplex support
- Connectors on rear: Line Out, Line In, Mic In & Joystick/MIDI
- Windows 3.1, 95, NT 4.0 and DOS drivers
- IDE connector • MPU401 compatible interface
- Onboard amp, 2W per channel
- Compatible with the following standards: Adlib, SB Pro, SB16, Waveblaster, General MIDI & Plug & Play

**Contents** Soundcard and Drivers/Manual on CD ROM

order code

**SB01245**

price each

**£7.20**

# SoundBlaster Live! Value

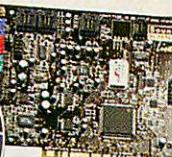
This card incorporates Creative's 'Environmental Audio' standard, which gives any supporting software sound quality so good it has to be 'Live'!

## Features

- Uses the EMU10K1 synthesis chip
- Up to 192 voice wavetable synthesis
- 3D sound from two speakers
- Full Duplex support
- Support for DirectSound3D and DirectSound in 2 and 4 speaker modes with compatible software. Environmental Audio supported
- Real time digital effects such as reverb, chorus, pitch shifter
- User selectable DSP mode to simulate Hall, Theatre etc.
- 8 & 16 bit, mono & stereo record and playback
- 48 MIDI channels, 128 GM/GS compatible instruments & 10 drum kits
- Connectors on rear: Front Line out/Speaker Out, Rear Line Out, Line In, Mic In & Joystick/MIDI
- Sample rates from 8 to 48kHz
- Compatible with the following standards: General MIDI, MPC-3, MPU401, Plug & Play, DirectSound, DirectSound3D.
- Connectors on board: Aux in, Digital CD in, analogue/MPC-3 CD in, telephone in.
- Uses up to 32B of system RAM for wavetable samples

**Minimum requirements** PCI free slot with 133MHz Pentium processor, 16MB RAM (32Mb for NT), Windows 95/98 or NT 4.0

**Contents** PCI Live! card, driver & applications on CD ROM, digital & analogue audio CD cable.



ONLY

£61.99

order code

**SB00815**

## 8MB PCI SVGA Card

- Uses the SiS 6326 chipset
- Onboard 8MB memory (not upgradeable)
- PCI slot required
- Has feature connector
- Supplied with drivers on CD ROM for Win 3.1/95/98/NT 3.5/4.0/5.0

order code

**SB01496**



ONLY

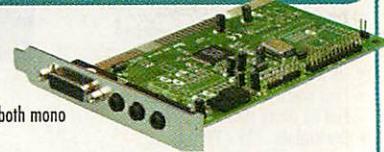
£22.60

## 3D Wave ISA Soundcard

### Features

- Crystal 4235 Chipset
- ISA bus connection
- 16-bit stereo full duplex A/D D/A
- 16-bit sample rate. 4kHz to 48kHz sample rate for both mono and stereo
- 20 voice FM synthesizer
- 128 voice stereo wavetable
- Input for line-in, mic-in plus output for stereo speaker
- MIDI interface
- Compatible with Sound Blaster Pro, Windows Sound System, MPC3, Adlib
- Supplied with drivers and utilities on CD

**PINE**



order code

**CH48868**

£9.60

£8.31

## Sound Maker 32 PCI Sound Card

- Positional 3D sound
- Supports DirectSound, DirectSound3D and Direct Input
- 20 voice FM synthesis
- Digital mixer and volume control
- 15 pin game/midi port
- Sound blaster/pro emulation
- Contents: Sound Card, CD-ROM Driver Disc
- Min. Sys. Req.: P166, 40Mb HDD, 16Mb RAM, Speakers, Windows 95/98/NT 4

order code

1-4

price each

5+

**CH67917**

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£10.65



NEW

## Powergenie AGP Gameard

- NVIDIA GeForce™ 256-bit 3D Processor
- World first GPU (Graphics Processing Units)
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- Integrated transform and lighting
- 256 bit rendering engine
- AGP 4X with fast write
- 15 million polygons per second
- 480 million pixels per second
- Supports Direct3D, DirectDraw, DirectVideo, Active X, DirectX, OpenGL ICD, QuickDraw
- Contents: AGP Card, Driver Disc, Win DVD Software, User Manual, Phono Lead
- Min sys. Req.: PII 333, 32Mb RAM, 10Mb HDD, DVD-ROM Drive



NEW

order code

**CH75571**

£186.57

£178.57

## SiS 6326 PCI 4Mb Graphics Card

- Supports DVD MPEG II playback
- Built-in programmable 24-bit true-colour RAMDAC up to 175MHz pixel clock and dual-clock generator
- Supports VESA Display Power Management Signaling (DPM) compliant VGA monitor for power management
- Supports YUV to RGB colour space conversion and bi-linear video interpolation
- Provides composite and S-Video output port

order code



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1-4

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Genius

## Newsketch 1212 HR III

- 12" x 12" tablet
- Auto-panning, Scrolling and Zoom in/out functions support
- Stylus and puck can be connected simultaneously with the auto device detect facility
- Programmable buttons support Office 97 and AutoCAD R13, R14
- Min. Sys. Req.: 486, Spare Serial Port, Windows 3.1/95/98/NT, CD-ROM Drive
- Contents: Tablet, 4-button puck with "Magic Surfer", 3-button stylus, Pen Stand, 9-25 pin adaptor, Mains Adaptor, Manual, Genitab Driver CD, AutoCAD R12/R13 and R14 compatible templates

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# Scaleable storage for ASPs

Seagate Technology has announced the first of a suite of Linux-based server appliances targeted at Internet and Application Service Providers (ISPs and ASPs) through a strategic partnership with Cobalt Networks. The first Seagate Server Appliance Solution, scheduled to be available this summer, is an easy-to-use, cost-effective solution that provides scalable storage and reliable data protection for ISPs and ASPs.

What's an ASP? Apart from being a small snake with a breast fetish an ASP is an Application Service Provider. The powers that be (whoever they are) have decided that since Internet connection is slowly moving into the free area it's time to figure out a new way to make money out of us.

This time it's turning the Internet into the equivalent of thin-client intranet. Instead of having your applications loaded on to each individual machine you have the applications on the server. Okay for intranets, but the idea now is to give this capability to Internet Service Providers – or rather, ASPs.

So you boot up your machine and it immediately logs on and stays that way, and when you want to run a word processor you get the version that's on the ASP, it's not on your machine at all.

Now this is aimed primarily at small corporates but you can see where this is heading. It's the inexorable push towards permanent connection, permanent online and permanent control.

After all, what if you don't want to use the word processor that your ASP happen to provide? Change ASP? But what if there's no option. Nasty. Anyway back to Seagate who are telling us how they can give the necessary storage and delivery systems to ASPs.

"As Web-based applications continue to evolve and drive storage requirements, the idea of an ISP

providing storage as an incremental service to their small-to-medium sized business customers is becoming more and more of a reality," said Tom Mulvaney, senior vice president, Internet Solutions group at Seagate Technology.

"Cobalt's strong positioning in the service provider market and their solid understanding of vending Web-based applications to small-to-medium sized businesses allowed Seagate to develop ways to better serve ISP customers through the delivery of storage as an application. Offering small-to-medium sized businesses access to their information, 24/7, without interruption and fully protected, is a service all businesses in today's Internet economy can't do without."

This partnership provides both companies with immediate and long-term value in delivering complete, turnkey, and affordable server appliance solutions. According to Dataquest, Cobalt is the marketshare leader (in unit shipments) for server appliances.

Through the agreement, Seagate is granted complete access to Cobalt's large installed base of worldwide customers, including over 1,000 ISPs. This agreement will help increase Cobalt's efforts to capture marketshare in the server appliance space and to leverage Seagate's established sales and distribution channel that will broaden the Company's sales outlets.

The agreement also provides Seagate the opportunity to utilize Cobalt's third party developer program for application development on the Seagate server appliances. Applications that will be developed on the Seagate server appliance will also be available for the Cobalt platform. Because the Seagate server appliance platform is Linux-based, application development and deployment will reduce time-to-market for Seagate's suite of solutions.

# Squash up there

Aladdin Systems, developer of the *StuffIt* compression format, has started a public beta test of its *Aladdin Expander*, a free Expansion access utility for Red Hat Linux. By creating a pre-release online version of the decompression software, Aladdin opens the door for more widespread testing results, helping to ensure the integrity of the application to provide a solid solution for Linux customers ... yadda yadda yadda.

Which means, basically, that thee and me get to do their beta-testing for them – mind you it's better than doing beta-testing on what's supposed to be a finished product. I dunno, what gets me is that here we have a company with a great product with a silly, provocative name like "StuffIt" and they still turn out the stuffiest of press releases.

Aladdin Expander for Linux is a command line utility that offers expansion of the top compression and encoding formats common to

Unix, Windows and Macintosh OS, including *StuffIt* (.sit), ZIP (.zip), ARC (.arc), gzip (gz), Unix Compress (.Z), Uuencode (.uu), BinHex (.hqx), Arj (.arj), MacBinary (.bin), and MINE (.mime, .mme).

Expander for Linux supports expansion of archives from all versions of *StuffIt* with the exception of version 1.5.1 encrypted archives and version 2.0 archives that were created using optimisers. "Linux users are faced with a variety of compressed files including *StuffIt* and Zip archives when files are downloaded from the Internet," said Marty McGillivray, director of product management.

Aladdin Expander for the Linux is expected to be available soon for Corel Linux and the Macintosh OS system. To sign up to be an Aladdin product beta tester, go to: [www.aladdinsys.com/expander](http://www.aladdinsys.com/expander)

**Aladdin Systems, Inc.**



In the world of personal computing, never a day goes by without some company or other releasing their latest, fastest, all-singing, all-dancing, "how did you live without it" piece of hardware. Strange, then, it seems with such diversity and variation in product, even sporting the same "chipset" that the operating system market is under-subscribed.

If we remove MacOS and RISC OS, which are essentially hardware-specific operating system's, the number dwindles to the point that if you ask the person in the street to name a Personal Computer operating systems, he would respond "Windows" with zombie-like automaticity.

Anyone who has ever shared in the "Windows" delights of system lockout's, freeze's, bugs, ram over stack's, crash's or - something which RISC OS and Mac OS users are completely unfamiliar with and are excused from class - the infamous blue screen of death! It begs the question, why?

In the real world we have expectations. If a product causes problems and doesn't work to our satisfaction we demand repair, replacement or look for an alternative. A luxury which, on the surface, is not afforded to us in the world of "PC OS's" or so it would seem.

Time to scratch the surface. Enter stage left: Linux.

For those unfamiliar with the name, Linux was developed from the workings of "MINIX", an operating system written by a Dutch professor of computer science back in the 1980's. Its primary goal was to act as a learning aid for his students to come to grips with complexities of the Unix system.

Come the early 1990's, Linus Torvalds, a student studying at the University of Helsinki, who had been experimenting ways of increasing the practical

# The

applications of "MINIX", issued his source code as public domain software, so others could work on and modify the "Linux" Operating System.

One of the many things that make the Linux OS unique is that it's "open source software" meaning it is available to all. Developers can submit patches, drivers and bug reports to Torvalds, allowing the customisation of the OS to suit the individual user. Providing, of course, they speak the code lingo.

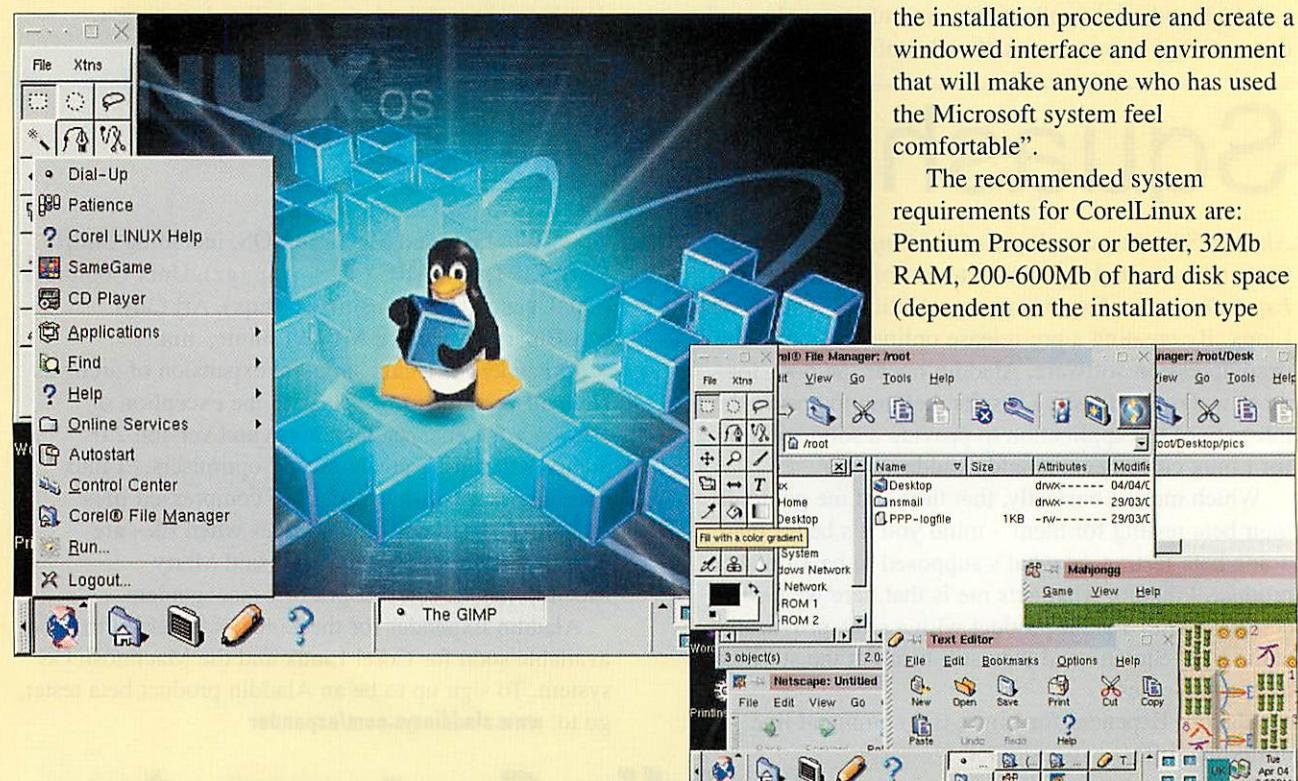
The heart and soul of any operating system is the Kernel which controls and implements command sets. It's essentially the central switchboard for all the system components. The massive, constantly ongoing, user input in development of Linux, has lead to the development of a "robust kernel" - in other words, one that doesn't fall over and break. Which many consider a far more reliable backbone than those offered in many other commercial operating systems.

## Enter Corel

CoreLinux 1.0 is one of several variations on the Linux theme available on the market. Although primarily the source code is the same in all systems, according to the company's literature, "CoreLinux attempts to simplify

the installation procedure and create a windowed interface and environment that will make anyone who has used the Microsoft system feel comfortable".

The recommended system requirements for CoreLinux are: Pentium Processor or better, 32MB RAM, 200-600Mb of hard disk space (dependent on the installation type



# Art of Linux

chosen) and a 2Mb VGA/SVGA graphic card or higher. These requirements are slightly higher than other Linux variations due to the attempts at a more "Windows"-like environment. Those desktop backgrounds and fancy start menus eat into system resources.

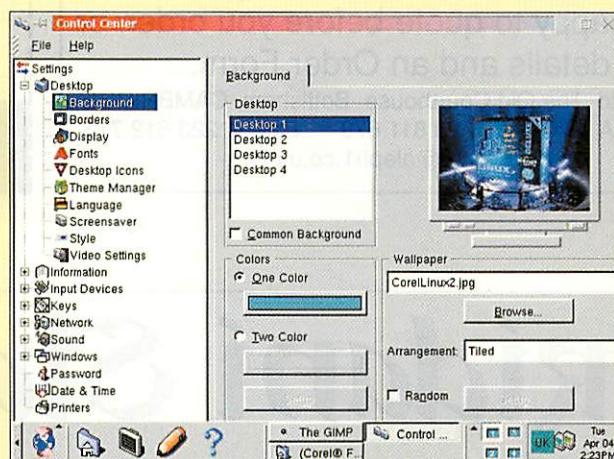
CoreLinux OS is based around the Debian Linux distribution network. Debian is a group of 500 volunteer developers worldwide. CoreLinux as with all Linuxes (Linuxi?) is free to download from the Internet, but be warned the basic OS, at 300Mb+, is a bit of a beast. Far less hassle to buy.

*What?* The masses cry. *Purchase a free OS!* Well, the OS source code and tools may be free but if you want Core to offer company support, provide a hardcopy manual, and the extra proprietary software that comes with the retail version of this OS, you will have to put your hand in your pocket. Though at about one third the cost of the retail version of Microsoft's *Windows '98* it isn't outrageously priced.

The manual is fairly large weighing in at 354 pages and, at times, indispensable especially on the networking side of things. The friendly set-up user interface appears, on the face of it, just what it seems. Having previously worked with other versions of the Linux, it was refreshing not to have to mess around setting up partitions, for swap files and installation.

The system can be installed using the express, no-fuss method or, for the more confident user, the thorough advanced set-up. The options are pretty much uniform, you can choose the destination for the install: whether the system is to take over a drive completely by reformatting then installing into "native Linux" hard disk space; create a separate Linux partition around an existing operating system; or reside within a DOS/Windows environment.

The systems installation appeared in my case to be going well until the final boot sequence, when I was presented with a flashing log-in screen. Not disheartened and having a basic grasp of the system, I dropped into



console mode to modify the input device instruction set or XF86 Set-up in Linux lingo.

The command set for Linux shares similarities to MS DOS in structure, remembering that unlike DOS the instructions are absolutely case sensitive. The input set-up screen allows you to modify your mouse, keyboard, graphic card and monitor settings:

*Ssssttrrrike 1!* My Ge-Force graphic card is not available, so I have to swap it for a basic S3 one;

*Ssssttrrrike 2!* Every generic S3 chipset is catered for – except the one I have. Not downhearted I check which cards on the Extensive list. Stick in the Matrox G200 and bingo we are in.

The pre-boot sequence asks how you wish to start up giving five choices: Standard, VGA, aka safe mode, Debug, console or advanced. If you have an existing OS this will be available as a sixth option.

Linux, as it is the original network operating system, requires you to log-in with a password after your initial installation. You will be prompted for a password and will have the choice to enter as either your own named "account" or as the root user. This is great as system settings can only be adjusted if you log-in as the root super user, so the chances of family members destroying



# ARMLinux!



Aleph One is now shipping the first edition of Aleph ARMLinux for use on Risc PCs. It is based on Red Hat Linux and has limited documentation. At £10 inc VAT and post it does not include support except by email.

We can also provide a new Hard Disc of at least 10GB with Bootable Aleph ARMLinux already installed, and with space for your RISCOS and PC work too. RISCOS 4 and the necessary drive reformatting are available at the same time.

A number of options are involved; details are on our Web pages at:

[www.aleph1.co.uk/armlinux](http://www.aleph1.co.uk/armlinux)

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## ERIDANI LINUX 6.2 (Jayden)

Our own distribution,  
based on Red Hat Linux 6.2

Includes all Red Hat updates, numerous tidy-ups and some extra software.

*This distribution is kept up-to-date on a daily basis.*

Also available: Eridani Applications 6.2 based on Red Hat Powertools 6.2

### Other distributions we can supply:

Debian GNU/Linux 2.1 (*slink*) *Stable release*

Mandrake Linux 7.0.2 (*Air*) *Updated release*

Slackware Linux 7 Corel Linux Storm Linux 2000

All of these releases are the 'GPL' versions - and our  
prices reflect this- single CDs £3.50, 2CD sets £6.00

Postage and packaging rates apply: £1.50 for the first 2 CDs, 50p per extra disc. Non-UK rates are on our web site.



**<http://www.eridani.co.uk>**

Email: [linux@eridani.co.uk](mailto:linux@eridani.co.uk) Tel: 07050 691454 Fax: 08701 600807

the system are greatly decreased.

This desktop is very "Windows" from the pop-up start menu, to the task bar with clock at the foot of the screen. Many of the Windows basic system clicks and shortcuts work within CorelLinux, and in no time at all I feel at home. Unlike Windows the system has a built-in "sticky pin", multiple desktop feature. The Sticky pin allowing you to choose which current open programs appear on the easily switchable desktops.

The addition of GIMP and Word Lite gives you instant basic writing and design software – these are only available with the retail version. There is a good choice of desktop games, a CD/MIDI player and numerous other tools and applications.

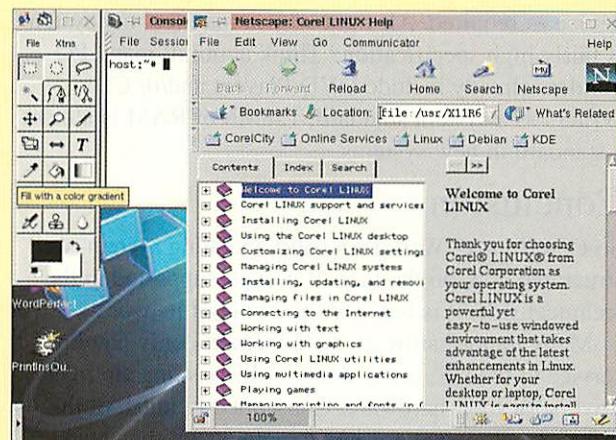
The networking capabilities of the Linux system are awesome. Many Internet service providers use the Linux or Unix system due to its extremely reliable nature. So it comes as little surprise the networking side of CorelLinux is well-supported.

The dial-up networking lets you set up the Internet connections, providing you already have an ISP. The Samba client lets you share files and printer services with Microsoft-based OS machines, and the Ethernet configuration allows you to talk other machines in a local network environment.

## Like Windows?

You may feel my comparing of CorelLinux to Microsoft's Windows is unfair and I would tend to agree. This is, after all, Corel's version 1.0. Microsoft have had a lot more attempts to reach their current position in the OS market. I only compare the two because of Corel's claims of the system's simplicity of use, aiming this product square at the "regular" home user. If anyone is looking to affect the home user market well, like it or not, Windows is the current standard.

In reality CorelLinux needs a lot of user input to define it's working parameters. This isn't necessarily a bad thing, in fact I applaud it. Alas it makes a mockery

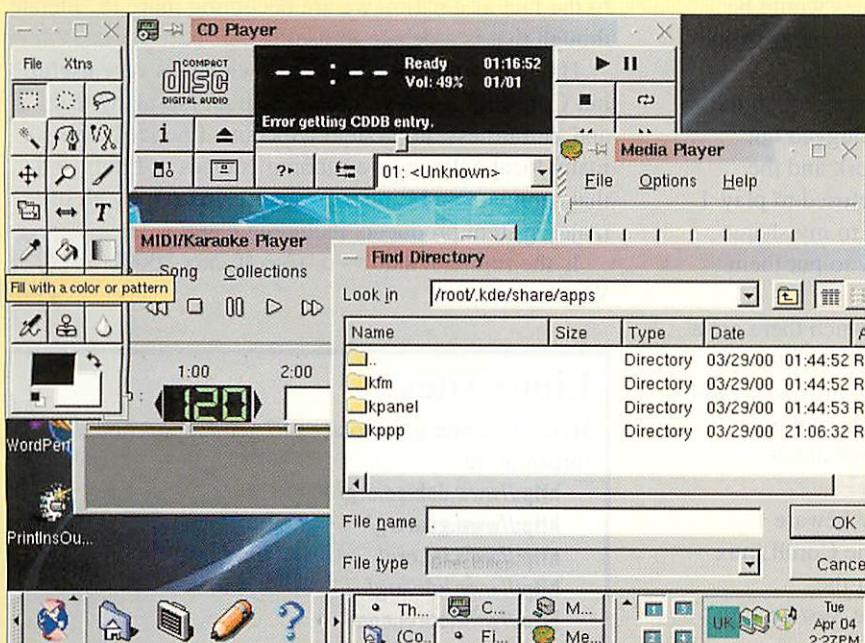


of the idea that it's a simple system to operate. The "windowed" user interface is very similar to Microsoft's own, and several of the operations bear a striking resemblance.

In truth setting up even simple tasks can be lengthy, TCP/IP settings provided me with hours of entertainment, although the manual says "get your protocol information from your ISP" the harsh reality is that, after contacting four well-known, heavily subscribed ISP's, not one of them was able to answer the questions, Corel say to ask. All four said they were only trained in Windows set-up. Ironically I know that three of these companies use Linux for their main servers.

The system claims to be plug and play. Even if we ignore the fact it was unable to set-up the first two graphics cards I tried out, although it detected the third, I was forced to drop into the console commands to activate XF86Setup, as I experienced minor graphic anomalies. Changing screen mode although on the face of it appeared easy, proved to be complicated.

I also found the old adage "if it isn't broke don't fix it" was once again proven true. When trying to set-up the mouse, in order for all three buttons to work, I found that when I selected the correct mouse listed, the pointer stuck at the top of the screen.



The system also couldn't handle my sound card, and I was forced to follow a sequence of very long-winded instructions to edit the kernel, so I could get sound.

Other minor system changes were needed. It couldn't identify more than 64Mb RAM without additional instruction. The VGA, windows safe mode equivalent has a bug that will not allow you to use the keyboard. Try as I might I could find no way of operating my DVD player and it flatly refused to use my MPEG decoder card.

In order to get the system to use all three CD Devices I have, DVD, CD Player and CD Writer, I had to edit commands so they would mount up automatically, rather than having to individually mount each



device as required. All right so you may feel my system is fairly high specification? Think about it: many PC builders already include DVD Players and/or CD Writers as a system standard, 128Mb of RAM is almost a standard in new systems.

## Conclusion

So CorelLinux? Well it's a solid operating system, well structured and, on the face of it, well supported in the technical side, it is however not without its woes.

Many major hardware manufacturers only pay lip service to the OS; many don't bother issuing alternate drivers for their hardware. Consequently much of the driver development appears to come from the unpaid masses. Though this is by no means universally true. You do have to ask how much money can be made out of an essentially free OS?

Although there are an ever-increasing number of titles available. The PC home market is not well catered for, don't be surprised if you find the Linux titles tucked away on a small shelf at the back of your local software supplier. Saying that the Internet has a bountiful supply of free and shareware Linux titles.

The extremely robust nature of the Linux kernel marries it beautifully to company and Web-based network systems. As systems go it's hard to knock down and it gets back up again with little fuss.

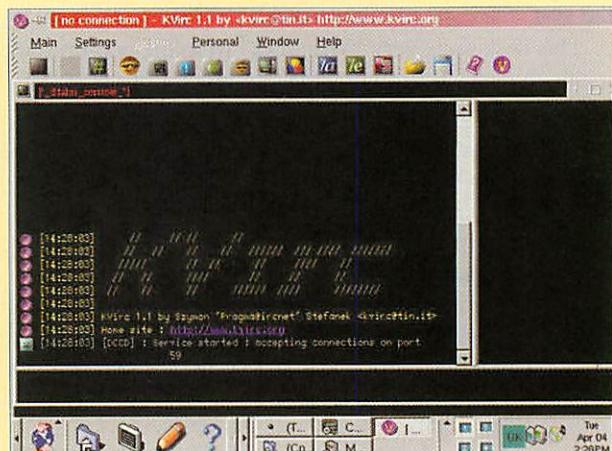
Much of the development has quite rightly gone into system stability unfortunately this, I feel, leads to shortfall's for the average home user, unless you like to tinker expect some surprises. After eight hours of unsuccessful attempts to install the OS on my main home system I eventually installed it onto a relatively low specification machine, where it now resides as happy as Larry.

Unfortunately as Microsoft have shown the home market isn't as interested in stability as they are in bells and whistles, though Linux can be pretty and sing sweet tunes, a hell of a lot of development and support from multimedia and games software companies would be required in order to shift the general public away from Windows.

Information overload is a problem and although the system is theoretically plug and play, I plugged but couldn't play. My keyboard wouldn't work and the powerful graphic card I have installed refused to play. I managed to find drivers for the later but to my shame was unable to find any reference on how to put them into the system.

I turned to the Corel newsgroups of which there are a dozen or so, but wading through the 18000+ letters on the first group I looked at was a daunting prospect. I did find several pleas for help from people sharing my technical difficulties unfortunately none of the 20 spotted had been replied to.

Most new system owners will already beware of AGP or the advanced graphic port. The CorelLinux system makes no reference to this in fact the manual states "PCI Graphics card" in the System requirements section.



External device set-up isn't very plug and play. The external modem I use needed a command line setting up, thank god for the manual, and the printer needed setting up as a network/local printer, then configuring in each piece of software I was using to get it to print.

So do I like CorelLinux? Yes I love it and long may she reign. So I have a lot of gripes and would suggest that version 1.0 is not yet ready to take over the home OS market. Many of the bugs I found are being dealt with in the Version 1.1 release, due out now.

That says it all for me. User power. Yes okay it may seem like we are guinea pigs at least they listen to our problems and act on them. The newsgroups are buzzing with help and advice and there is the helpline. E-mail and written requests for help are dealt with quickly. The free help is limited although you can buy extended support for a small consideration. The manual and help files in the OS itself answer a lot of the questions that arise.

For once it's nice to feel your contribution is heard. The home market won't fall at the feet of Linux just yet but I promise you once you have your system set up you can withstand the bomb blasts that cripple other well-known operating systems. The label of the "hobbyist's OS" although still partly true is disappearing maybe due to the fact as a nation we are becoming more PC literate though that is a debate in itself.

Having some existing OS knowledge is very useful but CorelLinux lets you learn without too many tears and, in fairness, no system wipeouts. I noticed that many local colleges are running courses in Linux and that seminars and Linux days are being run by all of major system producers including Corel.

Is the future Windows or CorelLinux 2000? Watch this space.



## Linux sites

Here are some good places to get support and information:

- <http://www.debian.org/>
- <http://www.gnu.org/>
- <http://www.fsf.org/>
- <http://www.kde.org/>
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# Sites for sore eyes

*Steve Scott checks out a brand-new Web design package*

This new release from Dansoft Developments, their second since *WebFX3D* two years ago, fills a badly needed gap in the RISC OS market – a standalone WYSIWYG design package, specifically tailored to meet the needs of intermediate or professional users. Current solutions range from a barrage of freeware utilities strung together, to plug-ins of DTP or document processing packages, *HTMLPro* (for *Ovation Pro*) and *EasiWriter/TechWriter* respectively.

*Sitewriter* has been in development for about a year, and its release has been greeted with a mixture of delight and derision on the Acorn newsgroups, mainly on the subject of its user interface. I'll come to this in a moment, but first of all, let's explore just what this new box of tricks does. The review is being conducted with version 1.02 on a Risc PC, running RISC OS 3.5, and no Net connection, using a copy of the software as e-mailed to me.

The software is normally supplied on a single 1.6Mb disc, along with an HTML-based manual. There are no printed manuals or expensive packaging with *Sitewriter* – hardly

the Macromedia or Adobe approach, using large boxes with large amounts of space within, but at least it keeps the cost down.

Part of the joy of seeing a package like this on our platform, is down to the operating system. RISC OS is a superb environment for Web design, and is only let down by the lack of support for the latest Web technologies, a trend that is starting to be addressed with new Web browser products from the likes of Castle and Oregon this year.

Comparable tools on the Mac and PC are superb in their own right, but are let down by the operating system they run on. Being able to have a browser window on screen, plus editing windows, without having to be forever re-arranging, change focus, or minimise, is what makes RISC OS so intuitive in this area. Now the release of *Sitewriter* adds to the enjoyment.

The software opens up with a nicely designed icon, before

installing on the iconbar. Two windows will open, introducing you to *Sitewriter*'s stylised interface. Taking the best (or worst) features of comparable tools on the PC and Macintosh, the initial reaction is that of surprise. I really will discuss the interface later.

The first window is the *Site Manager*, where the site files are created, arranged and managed. From here, you have a choice of creating folders, blank Web pages, framesets or HTML snippets – portions of code such as header or footer code to be repeated on every page. These objects are created using the toolpane or via the program menus.

The second window – *Site Object Properties* displays information on the currently selected object in the Site Manager, usually its creation and modification date. Objects can be marked as completed or published – a facility purely for reference purposes – to determine which parts of your site can be uploaded onto your server.

One of the first things I tried to do with this package was to try and import one of my former Web site designs. I was to find that this was not possible – *Sitewriter* has no discernible parser for hand-coded HTML files. It appears that Web sites must be recreated from scratch, importing non-HTML files as you progress. It would be nice to have something that would at least attempt to do this – perhaps a stand-alone program?

Once some initial objects have been created, further windows can be opened. An *Asset Manager*, where all images, files and external links are represented. This facility represents a link between *Sitewriter*'s link management, and the physical location of these files on your

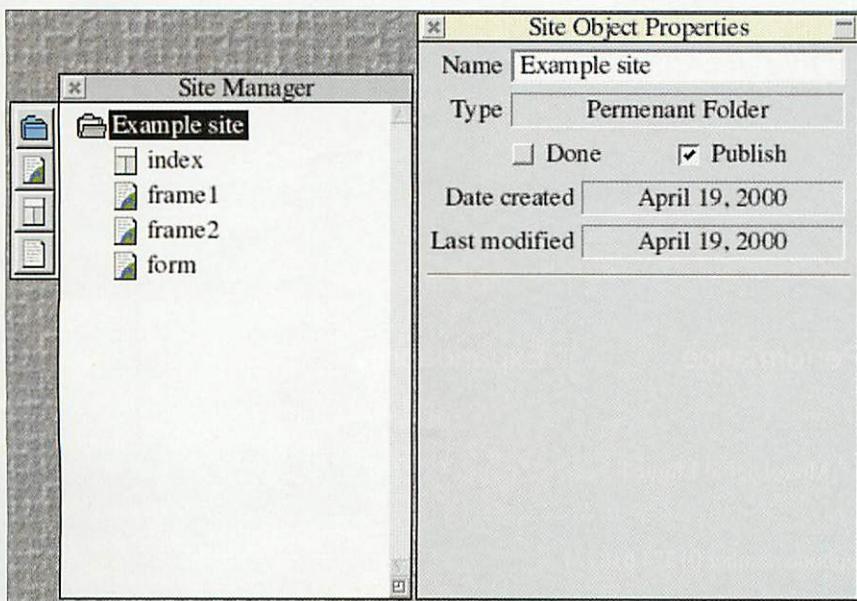


Figure 1: The Site Manager and Site Object Properties

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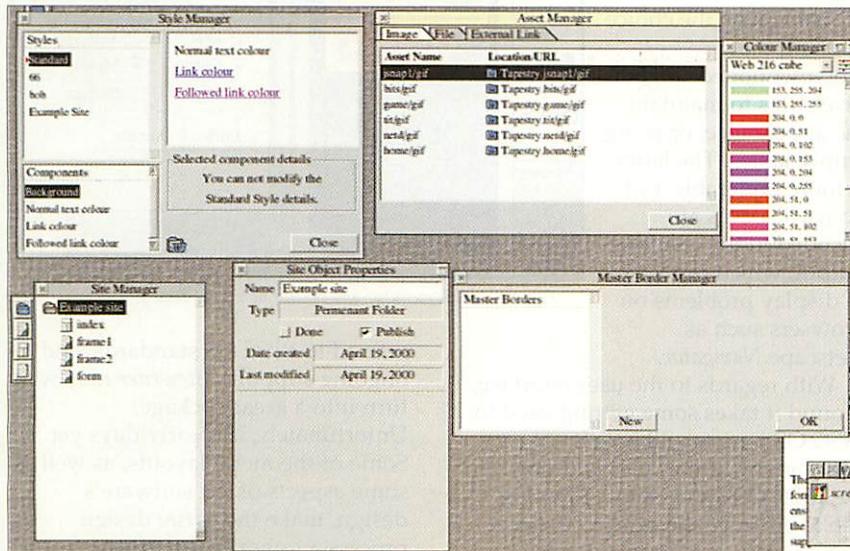


Figure II: The major windows of *Sitewriter*

system. Then there is the *Colour Manager*, where you can choose from pre-defined palettes, including the so-called Web-safe 216 colour palette, or define your own. The method of picking colours, and indeed, how they are represented is different to the standard Acorn colour picker. Colours are picked up, dragged and dropped onto elements to colour them – not a bad option.

The main part of *Sitewriter* is its page-editing window. Once a Web page has been defined, double-clicking on it will open this window, along with a *Page Properties* window. A toolbar of key items beside the editing window enables the creation of text, images, tables and forms. These elements are drawn onto the page by clicking and dragging bounding boxes.

When released, you can alter that element's characteristics via the properties window. Further options in the toolbar allow you to gridlock the page, to allow more accurate positioning of elements, as well as show the grid – as in Draw.

From the Site manager, I created a simple Web site containing four objects – a frameset, two Web pages which each frame segment will display, plus a form page. The manual recommends setting up a separate folder to keep your Web site in. These folders reside within a

special folder in the same directory as the *Sitewriter* application – I hope this isn't too fixed a concept, I like to put my data in a different place to my applications, and it's essential in networks.

The frameset is built using the *Frameset Properties* dialogue where, apart from specifying what the source files are, attributes such as margin settings, orientation, scrollability, width and height in pixels or percentages can be set. However, you cannot set the frame

names, and I discovered that you couldn't specify a target frame for any links which you set in one frame with the intention of refreshing the other. If there was a method, it was not apparent in the software or the manual.

The first frame was made to contain a table, filled with menu icons. The *Table Properties* dialogue allows you to specify whether each cell contains text or images. With the latter, you drag and drop your chosen image "asset" from the Assets window by clicking on the Link button in the Properties window. Any elements placed on a page are done in this way. Cells can then have colours and alignment applied to them with ease.

When images are placed, hotspots can be applied to create image maps. When at least two hotspots have been defined on an image, the *Image Properties* window displays positioning info and the ability to link to another page or Web site via the Assets window. Hotspots, and indeed any selected element in a page, can be nudged into position using the cursor keys.

When creating a form page, the toolbar suddenly fills up with many interesting icons. Once the form tag itself has been dropped on to the page, you can then apply elements

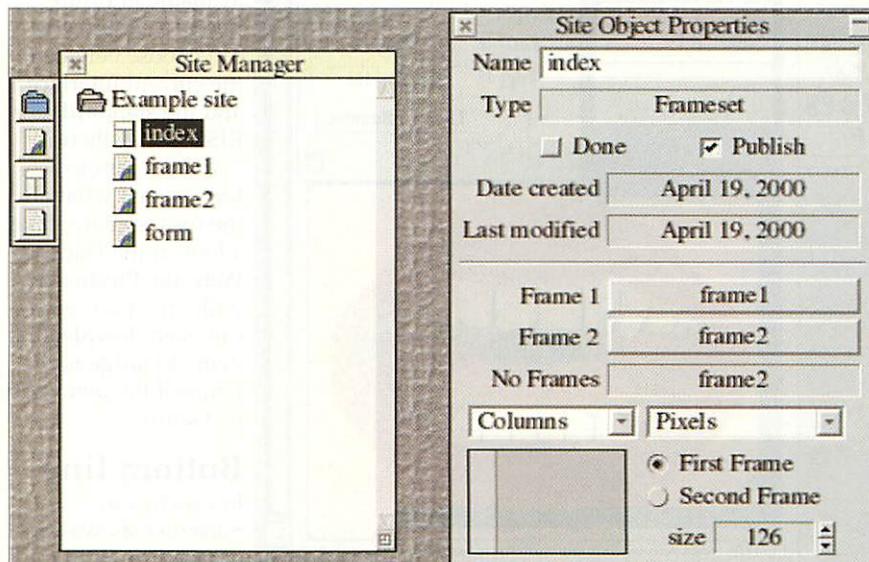


Figure III: The Site Object Properties dialogue

such as checkboxes, radio boxes, text-areas, drop-menus, writable icons and, of course, buttons. The process of form creation is more refined than with the other elements in this version.

The *Style Manager* is not connected with cascading style sheets, as I had hoped (not that current RISC OS browsers support them anyway), but with the colour of text and links normally attributed to the BODY tag. Styles can be applied to any number of pages or an entire site, and can be changed at any time, automatically updating the pages in the process.

Another aspect of *Sitewriter* is the *Master Borders* dialogue. This can be used to add navigation bars to the left or right of your page, or for adding headers and footers to your pages, across a whole site. This is roughly equivalent to the Dream Templates feature of Macromedia *Dreamweaver 2* and *3*, although not as advanced. You can define more than one master border, perhaps for particular layouts within subfolders of your site.

Once the site has been created and safely saved, you can now publish it as a proper Web site folder. On clicking the Publish option in the Site Manager menu, a window

containing three tabs appears, showing a small variety of options. You can first specify a name for the folder in which the Web site will be saved, followed by a location to save it to. You are also given the choice of using the aforementioned single pixel GIFs to maintain the appearance, or using empty tables. The latter is more preferable, but no hard spaces are encoded in the resulting output, which can lead to display problems on browsers such as *Netscape Navigator*.

With regards to the user interface, I found it takes some getting used to. RISC OS purists will hate it – it defies many of the rules laid down in the RISC OS Style Guide. Pressing Tab to advance the caret to the next icon for instance, does not work, which is incredibly frustrating.

However, I am glad to report that the author is actively working on a revised interface that will adhere to RISC OS style guidelines. I think that by utilising the best features of other operating systems into the design but with the RISC OS ease of use, *Sitewriter* can prove enticing to Web design professionals of foreign platforms. I would like to see an option made available in future releases, where you can choose between the current interface and the standard RISC OS aesthetics.

If you want to see for yourself what all the fuss is about, take a look at the Dansoft Web site. Produced with *Sitewriter*, you can even download a demo to judge for yourself the merits of its features.

## Bottom line

In conclusion, *Sitewriter* shows a lot of promise. With the prospect of the interface being

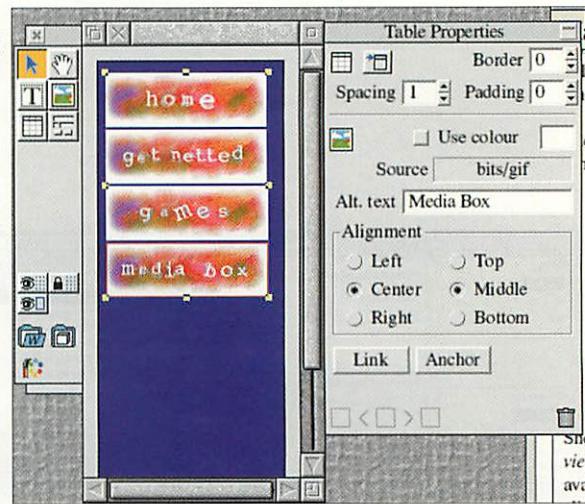


Figure IV: This menu bar was created using the Table Properties window

refined to RISC OS standards, and ongoing support, *Sitewriter* may well turn into a great package. Unfortunately, it is early days yet. Some of the menu layouts, as well as some aspects of the software's design, make the entire design process a rather tiring affair.

In comparison, products such as *GoLive 4* and *Dreamweaver 3* are much more refined in these respects. I urge the author to put more effort into cleaning up the look and feel of the software. With Internet standards always changing, it is vital that *Sitewriter* gets the attention and development it deserves.

Currently, *Sitewriter* is both rewarding and frustrating in equal measures, in the same way as the initial release of *HTMLPro* was. I did not get the opportunity to test *Sitewriter* alongside *Multimedia Textease*, which also has an HTML export facility. But *Sitewriter* is a stand-alone package, and for its current price tag, is quite capable, when you make the effort.

It may not have some of the more powerful features of larger products, but they are considerably more expensive. As it stands, *Sitewriter* is potentially great, but needs further improvement before it becomes an essential part of your collection.

**END**

## Product details

Product:	<i>Sitewriter</i>
Price:	£60
Supplier:	Dansoft Developments, PO Box 1955, Leigh-on-Sea, Essex SS9 5BF
E-mail:	dan@dansoft.co.nz
Web:	www.dansoft.co.nz
Requires:	4Mb RAM, 2Mb hard drive space, RISC OS 3.1 or better

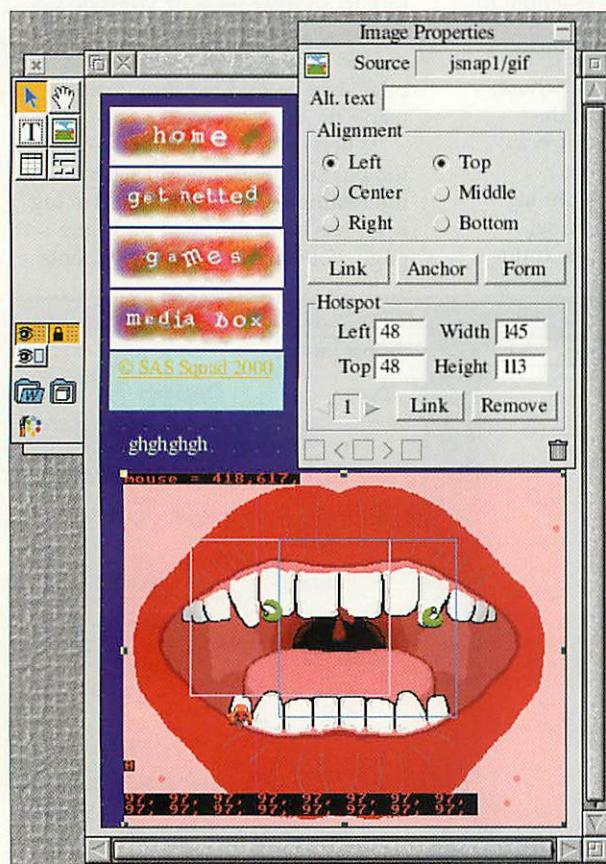


Figure V: Creating hotspots via the Image Properties window

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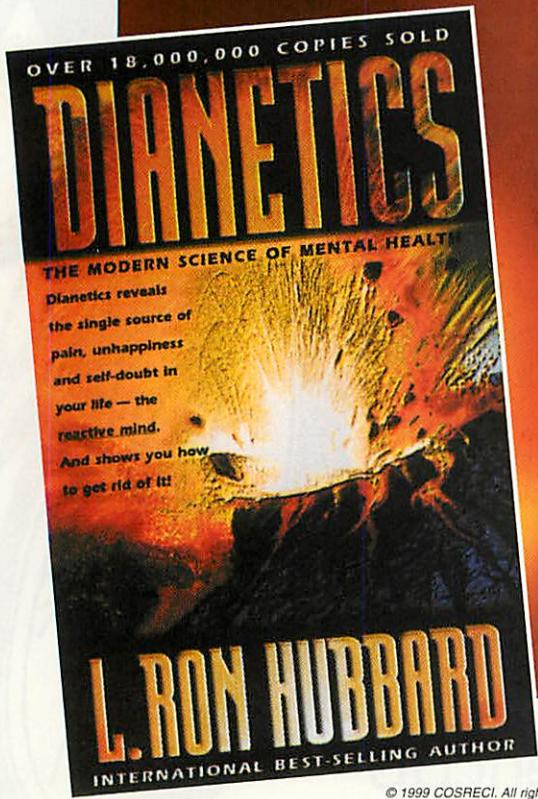
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# Is the drought over?

This month we bring news of a new release from R-Comp. Unlike with previous titles from the gaming giants, this one has been announced completely out of the blue. *Chaos Engine*, an Amiga classic, was ported to the platform some time ago but licensing problems meant that it could not be released commercially until now.

The game is a top-down 2D shooter and although it's a good few years old now and does not excel graphically it's still fun to

play. The review is on page 57. In other good news this month, VOTI have announced details of a new game under the title of *Eat My Dust*. More details will follow next time.

## TBA no more

In a move long anticipated by those in the know, Martin Piper recently announced the closure of TBA software. The company was a well-known force in the

market until recent years which saw many of the group go off to work in full-time jobs elsewhere in the industry.

The company which produced such home-grown titles as *Cobalt Seed* and *FTT* in the mid-nineties went on to produce *BHP*, arguably the first game to take advantage of the StrongARM processor. Recently though, TBA came into disrepute over their long-delayed *Quake*



Formula Two Thousand, still one of the most challenging race games around

Alasdair Bailey concludes his term of office



Cobalt Seed, a 3D shoot 'em up, also by TBA



Cyber Ape, one of TBA's early platform games

conversion. Eventually, R-Comp negotiated a deal with the author of the free port and sold that commercially. Development of the dedicated RISC OS engine which reportedly needs just "two weeks of full time work" to get it into a releasable state has now been cancelled.

The announcement isn't all bad news though, plans are in place to release much of the source code and development tools used by the company into the public domain. Hopefully, others will be able to utilise these resources to produce some new games but watch this space and keep an eye on TBA's Web site at <http://www.tba-software.co.uk>

Martin, the group's most prolific coder, finished the announcement with: "It has been a fun few years in the Acorn community and we all have fond memories of past events". I hope I join the rest of the market in wishing all at TBA the best of luck in their future work.

### It's been a laugh...

After an enjoyable 15 months but all good things have to come to an end somewhere. Due to changing personal circumstances, I have been forced to retire from the gaming hot seat, hopefully my successor will be able to continue to track down stories even

54



before the Web sites get wind of them. Thanks for reading and do keep an eye out for my work on the dark side in *Computer Shopper* magazine among others.

### Iron Dignity

Just to prove that it's not just R-Comp who are producing good stuff for RISC OS machines, take a look at this latest selection of screenshots from *Iron Dignity* by Artex. Now this is the kind of thing we are really interested in... END

### Contacting me

Alasdair Bailey:  
[games@acornuser.com](mailto:games@acornuser.com)



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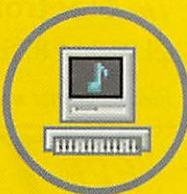
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Quake CDs - £22.00

Syndicate Plus CD - £26.50



Discs (example 10x white discs - £4.60, 50x black discs - £15.10, 5x HD red/blue/green/white discs - £2.49)  
Batteries (e.g. 4x AA Xtra alkaline - £2.18, 1x 9V alkaline - £1.84)  
Audio & Video Tapes - £Various

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United Kingdom

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email: Liquid@cableinet.co.uk

<http://www.cybervillage.co.uk/acorn/liquid/>

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Web Wizard - 32+2Mb, 8Gb HD, DVD CD drive, speakers, Resultz, Easewriter Pro, 56k modem, ANT Internet Suite with Java - £1289.00

A7000+ Odyssey CD - 16Mb, 4Gb, 40x - £655.00

A7000+ Odyssey Primary/Secondary - 16Mb, 4Gb HD, 40x CD & software - £713.00

A7000+ Odyssey Surf - 24Mb, 4Gb, DVD CD, 56k modem, ANT Suite - £831.00

"Sprinter" NC system - 10baseT, 16Mb, 15" monitor, keyboard & mouse - £442.00

MicroDigital Micro - From £586.00

RiscStation R7500 Lite - From £599.00

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PC Sound Pro 2

# Utter chaos

**C**haos Engine from RCI is possibly one of the best attempts to bring a role-playing game to the RISC OS market. While the game is comparatively old in terms of when it was first produced, it still looks fresh and vibrant in this conversion. Brought to our platform by Lee Noar (he of *Abuse* fame) as well as Nathan Walker, Nigel Gilbert and Robert Trevellyan, this top view game is highly playable (I had to force myself to stop playing and start reviewing it).

As with any role-playing game (RPG), the first thing is recruit your team. Here you can play with the computer as player 2 or have a real second player. Which character you choose here will determine how easy the game will be. Obviously, this only applies to the computer player.

The game play is quick. Even on some of the older machines, it is fast (the minimum requirements are an ARM3 machine with 2Mb of memory, so even an A3000 can be used to play this on).

My one complaint is the movement control – you only have eight directions with nothing inbetween (this reminded me slightly of my days playing games on a ZX Spectrum). Don't let that put you off, it is simple to get around by slightly repositioning yourself and firing.

If you're a fan of *Cannon Fodder*, this game is definitely for you. It has the same feel with a couple of major differences – the characters are bigger, the playing area is far larger

*Paul Johnson wears his fingers to the nub*

and unlike *Fodder*, the game can be played on a RISC OS 4 StrongARM Risc PC.

So, what have you to do in the game? As with any role playing game, you have to kill the baddies, collect the treasure and get out alive. Nothing new there. However, it is made fun in *Chaos Engine* by the brain work required to solve the puzzles (some of which are very subtle). Alright, you don't have to be Einstein to solve them, but they do keep you interested.

The variety of enemies also increase the enjoyment. There are so many and have a variety of differing methods to kill you. Ranging from the slow zombie types to the accurate jumping frogs (and more besides) they will keep you on your toes.

As with any other RPG, you need to progress up the levels of experience. This is where things become fun. You move up at the end of each game level (which can be very difficult at times). Easy? No.

If when you end the game level your statistics aren't up to the mark, you don't go up. Reaching the end of level is not as difficult as it may seem if you adopt the "run and dodge" method, basically: don't stand and fight, run and hit the nodes. There are three nodes on each level and all



three have to be fired on.) Alright, this method won't get you the highest score in terms of experience, but you will get out alive!

As you progress up the experience levels, the player statistics will change so that as time goes on, you will gain intelligence, strength and dexterity.

You are also awarded passwords to get straight to the next level. Nice. What is nicer though is that these passwords also contain your current stats – it's the same in effect as saving your current position and coming back later.

On an related note, Andrew Rawnsley has said that "if the program sells well enough, Bitmap Brothers are happy for further conversions to take place". If you like playing games (and this is one you will enjoy) and would like to see more in this area, go out and buy it.

END



## Product details

Product: Chaos Engine  
 Price: £20 inc VAT  
 Supplier: R-Comp, 22 Robert Moffat, High Legh, Knutsford, Cheshire WA16 6PS  
 Tel: 01925 755043  
 Fax: 01925 757377  
 Web: [www.rcomp.co.uk](http://www.rcomp.co.uk)  
 E-mail: [rci@rcomp.co.uk](mailto:rci@rcomp.co.uk)



# Online resource

Another online management and content resource for teachers, students, parents, headteachers and governors has been released into the education sphere. Visiting [www.learnall.net](http://www.learnall.net) will give you access to education publishers such as Channel 4 Learning, Espresso and SAM Learning.

Just released is the Resources section. This contains curriculum-related materials organised into subject-specific areas and attainment levels. Teachers can easily edit these to fit the needs of a specific classroom, creating lesson plans, online resources and classroom materials. If your school is short of the odd resource, a list of suppliers is attached to each section so you don't have to hunt around for catalogues.

Part of the DIALnet group (0121 624 5045) when you log onto learnall.net your profile is stored and in future you are automatically guided to areas catering for your particular needs. For example parents will be asked the ages of their children and the next time they go online information relevant to them will be there at their fingertips..

Another promising section is Channels. This provides topical and up-to-the-minute information on a range of

subjects which is updated daily. News stories are grouped into areas of interest such as the Staffroom, Primary Education, Secondary Education, SEN and ICT. Other areas such as Management provide news of new developments for headteachers and governors.

No site is complete without a chat area and here it's called Communicate. You can send e-mails, take part in conferences and discussion groups between schools and colleges around the world as a bulletin board system or in a live chat debate.

"learnall.net will have something for everyone, from exam revision tips to school finance management resources," promised Craig Taylor in charge of marketing for the new venture.

"But the real beauty of learnall.net is that the login and search facility finds all the information you could possibly want to look for before you've even asked for it."

Any catch? Well the site is free at present and promises to remain so until this September, after that there will be an annual subscription of £120 for teachers and £59 for parents, although Channels and Communicate sections will remain free of charge.

## In brief

### In a storm

Port is the National Maritime Museum's gateway to maritime-related information on the Internet and has just celebrated its first birthday. This online catalogue of maritime-related Internet resources contains over 1000 resources, selected and described by a librarian or subject specialist at the Museum. It also contains related electronic services such as research guides, directory listings, conferences and an electronic publishing section.

[www.port.nmm.ac.uk](http://www.port.nmm.ac.uk)

### Parlez vous Deutsch?

Softsease (01335 343421) have added to their battery of education essentials with Textease Language Packs. Available in French and German these cost £39 each.

Used in conjunction with Textease 2000 or Textease Primary the Language Packs allows children to type documents, spell check and speak in the with French or German. The menus and dialogues can also be changed at the click of a button.

A nice and necessary feature is the AutoAccent tool. This places the correct accent on characters within foreign words as they are typed. What is more it does so intelligently itself or you can be offered a selection of accents to choose from - you decide which option you prefer.

Indeed teachers can customise the whole work areas and program settings to suit their class. And if you want other languages? These are under development, just watch this space.



# Telling it like it is

Sherston Software (01666 843200) have released two more in their Keywords series. *Science Keywords - The Material World* explores the language associated with materials, their properties and physical processes.

Concentrating on commonly-used words linked to the science curriculum for Key Stage 1 and 2, large, clear photographs help explain concepts and vocabulary.

While *Maths Keywords - Numbers and Calculations* follows the same format again using images and text which can be heard read aloud (for those who need additional support) to help children understand the language associated with numbers, the number system and calculations. The cost is £29.95 each.

## Contacting AU

Pam Turnbull:  
[educ@acornuser.com](mailto:educ@acornuser.com)

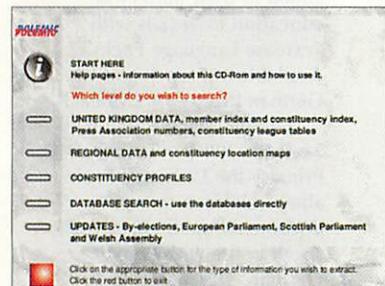
# No pain politics?

**R**esearching for articles and essays can be fascinating and/or frustrating and there's that niggling doubt that the looming deadline means that you may just have missed an important nugget of information.

When you find a tool which promises to make your life easier if is tempting to jump in with both feet. However, your first thought should be to check the credentials of the authors.

*British Parliamentary Constituencies* will definitely appeal to A-level and undergraduate students and the authors are Ivor Crewe, Professor of Government and Vice Chancellor of Essex University, and Anthony Fox, a professional researcher and Research Fellow at University College, Worcester.

Credentials fine, then how is the usability and relevance of the data?



The material is derived from official statistics and solid academic sources and this is arranged on the CD-ROM in a simple menu-driven program created using *KeyPlus*.

The CD-ROM presents the information in pages as you select which of five levels of information you want to access then turn the pages to get deeper into the content choosing from lists and buttons as you go. However, you can also access the data directly and thoughtfully this has been provided at different levels of detail simplified for A-level users.

Thus the main constituency data is in electronic form as SPSS data for researchers or in Excel format for general use while A-level students can access the information as Excel or Datapower files.

You can also opt to save the

*Pam Turnbull analyses a CD-ROM to make political researchers very happy*

information as a standard CSV file for importing into your own preferred database or spreadsheet. From there you can conduct "what if..." investigations, manipulating the information to fit with different scenarios as well as developing research, ICT and analysis skills.

The program comes with two booklets providing commentary on the data and how this can be interpreted. In this way it provides a base for analysing the 1997 election and the preparations for forthcoming elections fought on the same constituency boundaries.

What you get, in words and statistics, is a political and socio-economic portrait of every constituency following the extensive boundary changes which preceded the 1997 General Election.

This constituency material contains a full analysis of that election. The information is updated by voting data from the May 1999 elections for the Welsh Assembly and the Scottish Parliament and June 1999 data from the European Parliament elections. In addition the CD-ROM provides comparative data about constituencies and MPs.

Starting with the constituency profiles, there is a profile of the constituency and its MP, its administrative make-up and in table form there are voting outcomes, analysis, geographical size and population density as well as age, ethnicity, social characteristics – housing, poverty, car ownership – and economic characteristics as shown by occupational class, industrial sectors, agriculture and unemployment as a percentage and ranking for region, England (or Wales, Scotland, Northern Ireland) and UK.

Indeed for Wales and Scotland there is also information on the number of the constituency born in the country and those who speak Welsh or Gaelic respectively. For

Northern Ireland there is a similar category as well as data on religious denomination.

When it comes to the regions there is regional voting information in 1992 and 1997 for the nine regions, Scotland, Wales and Northern Ireland plus access to constituency maps and voting outcomes. This is further extended to the UK as a whole with a complete index of MPs, constituencies and Press Association numbers, lists concerning political parties and MPs as well as league tables of constituency characteristics.

The use of this database will not just be restricted to students, but political journalists and analysts will also find it a great tool. I would have liked to have been able to compare data within the program or have the data within windows so that different constituencies could be on screen at the same time.

However, there is an awful lot in this: from the Ordnance Survey maps of Northern Ireland to the amazing lists of data such as the seats which changed hands in 1997 to women MPs and Northern Ireland parties or make-up of the Government Front Bench.

An excellent program which will date quickly but I hope that the publishers intend to include Internet update options in the next edition to make this a cost-effective program for students as well as schools and institutions to buy.

## Product details

Product: British Parliamentary Constituencies  
Price: £50  
Supplier: Polemic Publishing, Marquis House, 2 North Street, Winchcombe, Gloucestershire GL54 5LH  
Tel/Fax: 01242 604060  
E-mail: polemic.books@argonet.co.uk

## Pam Turnbull listens to some software

**T**he first of three focused CD-ROMs from Sherston Software and Oxford University Press aimed at Key Stage 1 literacy lessons, *Sound Stories* is based on the *Letters, Sounds and Rhymes* strand of the *Oxford Literacy Web*.

The aim of the strand is to develop children's phonological awareness, alphabet knowledge, and their understanding and use of initial letter sounds. There is also a friendly spider that provides children with extra support when needed, reinforces key teaching points and rewards correct answers. To help teachers use the program in literacy lessons, there are clear teacher controls and record-keeping facilities, as well as advice on how best to use

sound. Children can choose letters from a to z as well as ch, sh, th and wh.

Teacher options allow you to customise the program and to keep track of children's progress. Some of the options available are changing the case of the reference letter, limiting the number of letter choices, switching off the colour used to highlight onset letters or digraphs in the stories or opting for automatic narration as well as choosing to opt out of the games, or only have one on offer.

Once a sound has been selected a book cover is revealed with the



Rosie rode on the rocket.

M

?

→

each word for himself too.

The second activity is a cloze procedure based on two pages from the same story. Here children must complete the sentence, or name an object using the words provided. The sentence is read out initially including the missing word. You've then got to choose it from the list.

Success means that the word is moved into the sentence and read out. Get it wrong and the spider will help reading out the word you choose

and emphasising the initial letter sound you should be looking for. Unless you're reading *Boxes* when children will be looking for the final letter sound - x.

The stories are fun, with titles such as *Whizzing Along* or *The Queen's Question*. The graphic style differs from story to story as do the characters and the voices. The animated spider is excellent and the sound effects have more to them than earlier talking stories from Sherston. If there is any criticism, it is that the games lack variety and an option to change the element of difficulty would be a bonus.

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Sam put on her sun-hat.

M

?

→

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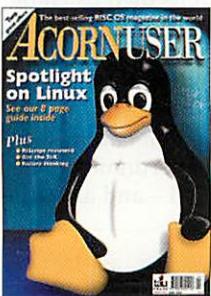
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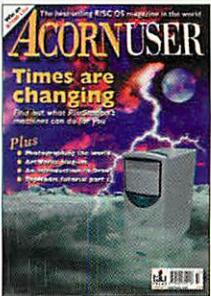
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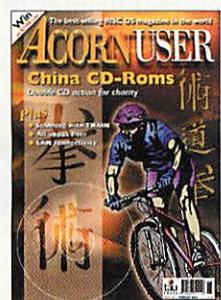
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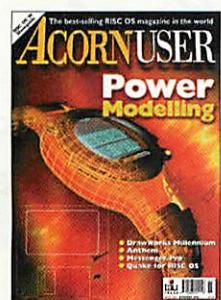
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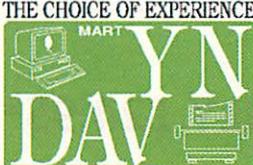
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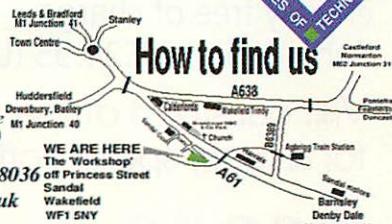
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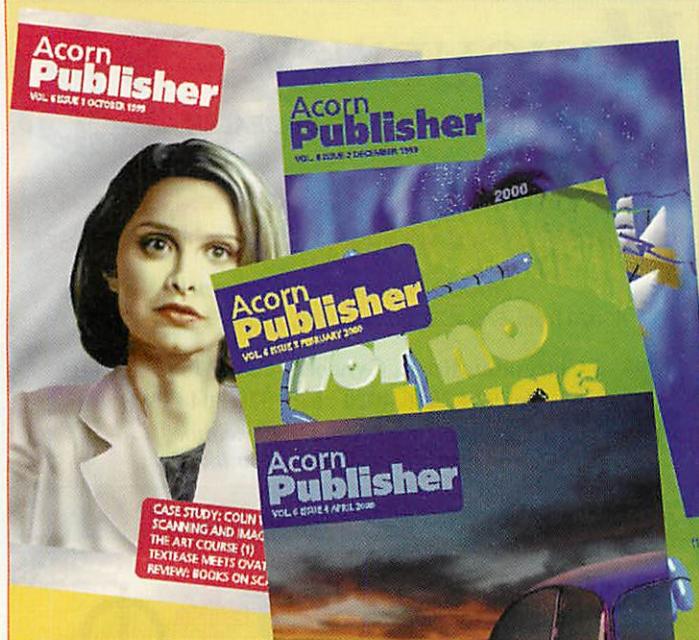
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# RISC OS

## Rambles

*Ample  
enquiries for  
Mike Cook*

**N**ow I wonder what ever happened to Ample? For the younger among you it was a music writing language based on Forth syntax for the Music 500 and later Music 5000 add-on modules for the original BBC Micro. These modules had hardware which formed the basis of the Archimedes sound system so, in theory, Ample should be able to be made to work on the more modern machines.

Does anyone know what became of it and if anyone has ported it to a Risc PC? By the way a Web search for Ample comes up with all sorts of non-music related stuff as I am sure you can imagine.

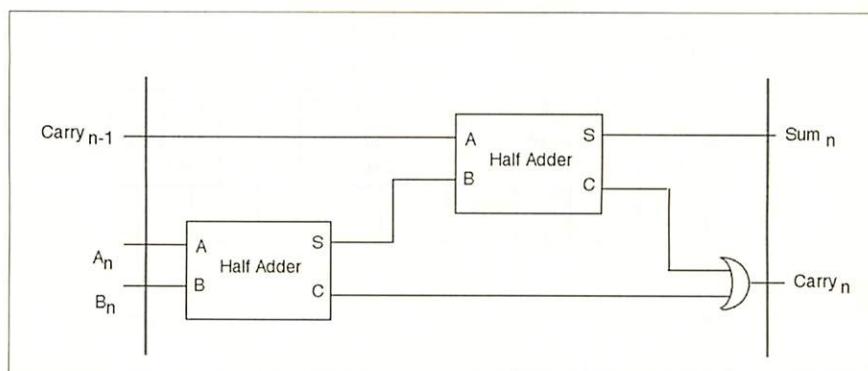
A few months someone was asking about a motorised telescope, well this month I came across a web site on just such a project it's at:

<http://zebu.uoregon.edu/~mbartels/altaz/altaz.html>

Almost a regular now Gareth is still intent on knowing all about the inside of a computer:

**Q** "I have a rather complex question to ask you, as everyone else I ask can't give me an answer. What I want to know is about how the computer does simple arithmetic, such as adding or subtracting.

I have basic knowledge of the ALU, and I know it makes most of the decisions and calculations, by calculating the various instructions in binary, but what I want to know

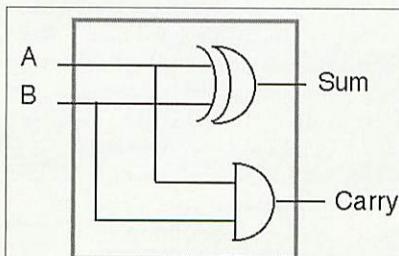


Two half-adders make a full adder

is how the computer actually calculates the binary instruction or does simple addition; as it has to use addition to calculate it anyway?

"For example: With 2 + 4, once it is translated into binary, how are the two numbers then added together in their binary form? We use columns from 2 to 128 etc. to do binary calculations, does the computer work in a similar way? I have heard of a hardware lookup table being used for this, but I didn't think it would have a register of every binary combination possible.

"Another thing on this subject: as binary uses voltages, how do these voltages work to do arithmetic calculations? Do they turn a gate on or off or something?"



The logic of a half-adder

"Finally, I have a question about SWIs. Why is it faster to use the decimal or hexadecimal codes for SWIs such as &2E? Is it because there is less converting for the computer to have to do?"

**A** What happens inside a processor is that various fields in an instruction activate various parts of the ALU ( Arithmetic Logic Unit ). For example in all ARM code instructions the top four bits must match the current state of the condition code flags before the instruction is actually executed at all.

For data processing instructions bits 21 to 24 define what operation is to take place, bit 20 determines whether or not the instruction will set the status bits, bits 12 to 15 determine the destination register, bits 16 to 19 determine one of the registers to use and bits 0 to 11 decide the other register or immediate value.

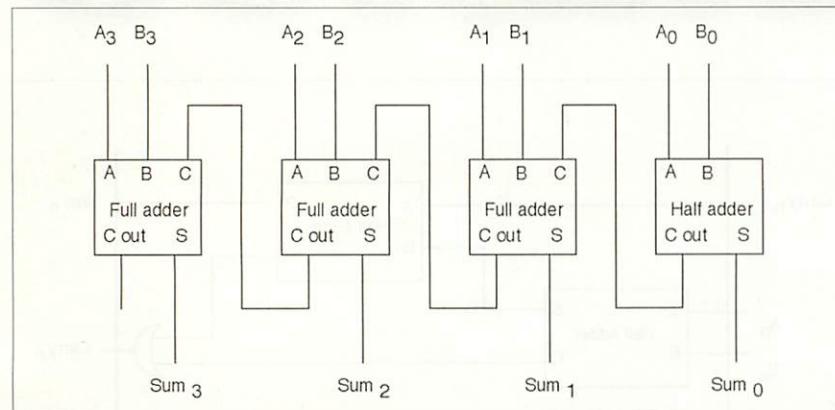
For the add instruction bits 21 to 24 are set to 0100, this pattern activates the adder function in the ALU by routing its output to the destination register, and the other bits in the instruction switch the

adder's inputs to the appropriate registers. Now having decided to activate the add circuit how exactly does it add up. When you want to add up you just add up one column at a time, with decimal numbers this means you have to deal with the numbers 0 to 9 only.

A computer does a similar thing but its columns are binary and so have just 0 or 1 in them. It is simple to add up two numbers with such a limited range:-  $0 + 0 = 0$ ;  $1 + 0 = 1$ ;  $0$

$+ 1 = 1$ ; and finally  $1 + 1 = 0$  and carry 1. There is no great deal of complexity to this and you can generate this relationship with a simple logic gate.

If you plot this out as a truth table you will see you have the exclusive OR function for the sum and an AND function for the carry out. This collection of gates is also known as a half-adder and is usually constructed entirely out of NOR gates and is shown opposite. To make a full



Adding two 4-bit numbers with a full adder for each bit

Tony Lindop has some comments about the DOS mapping problems posed in the December 1999 issue:

**I**"I believe that I have the answer to your final piece on DOSMAP commands raised by Christopher Rayson. I am a regular PC user and for some time have exchanged discs between my A5000 and DOS-based computers. I even had a small application published by *Acorn User* around November 1996, which mapped a large number of DOS file extensions to RISC OS file types and appropriate sprite icons.

"I believe that the whole blame can be placed on the shoulders of Microsoft as usual. A quick check on where file type information is saved on a 1.44Mb disc, using a sector editor (for example, <http://www.lindop.demon.co.uk/programs/>), reveals that directory information is stored as shown below on disc side 1, track 0, sector 1 and so on:

Location	Contents
Bytes 0-7	DOS 8 character file name
Bytes 8-10	DOS 3 character file type suffix
Byte 11	Name terminator

a space = &20  
Byte 12 Normally &00  
Byte 13 Normally &00 for DOS, but anything in Windows 98  
Bytes 14-31 Directory info...

"RISC OS uses Byte 12 for the last two digits of the file type and the bottom four bits of byte 13 for the 1st digit of the file type. If both Byte 12 and 13 are both zero RISC OS recognises that the file is of type DOS and assigns the default DOS sprite icon to the file. At the same time DOSMAP converts the file to the nominated file type according to the DOS file name suffix, and if a sprite icon exists for the file type, it is used to display the file on the desktop.

"The reason why this does not always work as described above is that MS in their infinite wisdom have changed the layout on the floppy discs. The format shown above is used by all early DOS discs, such as MSDOS, DRDOS, NW DOS and Windows 3.1. A quick check of a newly formatted disc with a number of files written by Windows 3.1, showed that DOSMAP works correctly with every file.

adder you have to get another half adder to handle the carry in from any previous column and arrange an OR gate to generate a single carry out from either of the half adders. So all you need is a full adder circuit for each bit, that means 32 full adders to add two 32 bit numbers.

The binary voltages are simply inputs to the logic gates, with voltages being used as outputs from those gates. As to your SWI question, in BASIC the conversion from a string to a number takes time and has to be performed each time the instruction is executed. Therefore it is marginally faster to give the computer the number in the first place.

In assembler or a compiled language the conversion is only done once, during the assembly/compilation, so makes no difference to the running speed of the program.

## Contacting AU

Mike Cook:  
rambles@acornuser.com

"Recent operating systems such as Windows NT, Windows 95 and Windows 98 seem to write random values in Byte 13, and RISC OS usually interprets the file type as "&x00", where x can have almost any value. Windows does not appear to use this byte for anything useful and it is possible to change the RISC OS file type to &000 without causing any problems as far as I know.

"Thus if a DOS disc is loaded into RISC OS, all files are selected and then converted to type DOS or alternatively to type &000 using the Filer menus, the problem is solved.

"Either of these filetypes work and, as soon as you do this, the Filer recognises that the files are all of type "DOS", and DOSMAP kicks in and re-assigns the file types according to their normal DOS suffices. I have been doing this regularly when exchanging discs between my A5000 and my old office-based Windows NT system.

"I now have to do the same when exchanging discs between the A5000 and an adjacent PC running Windows 98, with which it shares monitor, ZIP discs and a printer. I hope this is useful to your readers."



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# Ins and outs of SPDIF

*Mike Cook  
records his  
thoughts*

## SPDIF

I have been getting some e-mail recently concerning Mini Disc recorders and, more specifically, the optical input for digital recording. So I thought I would take a look at it and see what we can make. The standard used in these recorders is known as SPDIF, pronounced as 'SP diff' and is quite complex.

First, I would like to say that to convert to the SPDIF format from digital or analogue signals requires specialised ICs that aren't readily available and as the frequencies involved are around 6MHz it's not something you can do in software or with a PIC. But, for example if you could get hold of a CS8405 from Crystal, you could build a device that converts the 16-bit digital sound from a Risc PC directly into digital SPDIF format without ever going into the analogue domain.

So if we can't do that then why

the article? Well what we can make is an SPDIF transmission media converter, in other words something to feed the digital output from your CD drive into a Mini Disc recorder.

If you look on the back of your CD drive you might be lucky enough to have a miniature two pin connector that may or may not be marked 'Digital'. If so, this is a SPDIF output, if you look at it on an oscilloscope you would see an almost pure sin wave at about half a volt. Now actually it's not a simple sine wave because it is really a biphase-mark-code (BMC) modulated signal, that's a form of phase modulation.

That is, in any bit time, two crossings of zero represent a logic one, and one crossing represent logic zero, as shown in Figure I. The

frequency of the clock is twice the data rate so that every bit of the data is represented as two logic states which together form a bit time or cell. The data is sent in frames consisting of a number of 32-bit word sub-frames. For a CD there are two sub-frames in a frame and 192 frames in a block. For each sub-frame the logic level of the start bit is the inverse of the last data bit of the last sub-frame – this is the parity bit.

The first four bits of a word – known as a preamble – is used for synchronisation of the receiver and a block of data always starts with the same preamble. The preamble does not use the normal BMC method but some slight modification of it. Also this preamble identifies the coming word's channel, A for left and B for right. There is also a way of

indicating more than two channels for surround sound or multilingual translation, but that is not used on CDs.

Anyway you don't really have to know about the codes because what is important here is the connectivity. In the SPDIF standard there are two physical manifestations of the signal, electrical, known as coax, or optical, called a Toslink.

What I want to show is a method for converting from the coax to the optical method so that

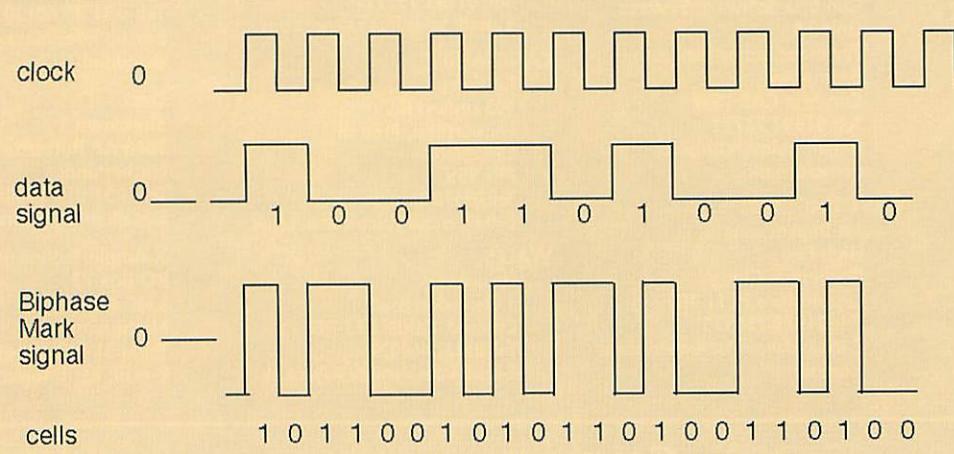


Figure II: How biphase encoding is put together from the signal and clock

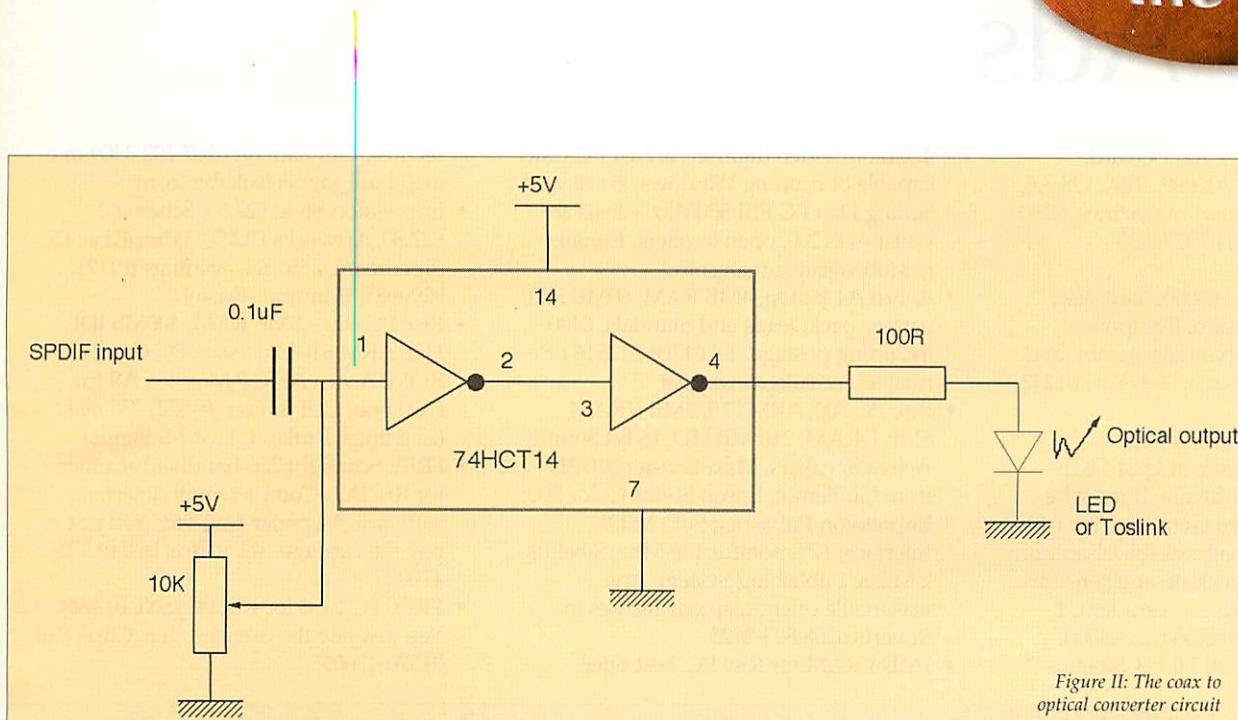


Figure II: The coax to optical converter circuit

you can connect your Mini Disc directly to your CD drive.

Most people seeing an optical connection for the first time assume that it is transmitted by infra-red light, I know I did. However, it actually uses visible red light, the sort you can get from an ordinary LED. Therefore all you need to do is to drive an LED from this small sine wave, the circuit is in Figure II.

Basically the signal is fed into a Schmitt trigger input inverter gate, this gives a logic zero or one depending on whether the input signal is above or below the threshold. The preset pot is used to adjust this threshold to the centre point and can be done by trial and error. This is made all the easier because you can see the LED light up – it's flashing so fast it looks to be on all the time.

Now you do have a choice of methods to deliver this light into your recorder. The most elegant way is to use a special Toslink emitter, one type is the 23278 from Toshiba, these are available from Maplin for about £5.00, order code SV09K. If you use one of these you will also need a fibre optic cable, a Toslink connector on one end and an optical jack on the other.

This cost me £20 from Richer Sounds, you can pay a lot more. However the real challenge of DIY is making it low cost, so you can dispense with the Toslink emitter and the fibre optic cable if you do it yourself. The Mini Disc recorder uses the one hole for a normal jack

connector input or an optical input, the way it distinguishes between the two is quite cunning.

There are extra contacts along the body of the jack socket, if the jack socket switch is triggered, by something being inserted, and there is no electrical connection between these extra contacts, then the unit assumes it is connected to an optical cable and switches over to optical input.

You can make a combined optical jack and emitter with an ordinary LED and the inside of an old ball point pen. As the ink in a pen is used it moves down the tube leaving an empty tube. This tube is almost the ideal size to make an optical jack, insert this tube into the Mini Disc recorder and try to record.

You should see it saying 'optical – No signal', if not try another pen insert or try giving it a single wrap of PVC insulation tape. When you have found the right tube cut off a few centimetres and flare one end by pushing the point of a pen in it, or any other tapered object.

You might have to soften the plastic tube first by dipping it in boiling hot water. Then hold it upright in some blue tack and dribble some clear epoxy resin into the tube. You can get a very runny clear resin as opposed to the thick opaque type, ask your retailer.

When the tube is full to the flared top place a 3mm red LED in the end and let it set. You can then wire the end of the LED into the the circuit in place of the Toslink emitter. Finally

wrap the whole thing in a few turns of insulation tape, you could also put a strip of cardboard along the wire / epoxy interface and then wrap it up again, this will act as a bit of strain relief and prevent fracturing.

To set it up put the Mini Disc recorder into record mode, put the headphones in it and set the CD playing. Then adjust the preset resistor very carefully, you will hear a point when the audio comes through very clearly, also the 'no signal' message should disappear.

Note the limits of the adjustment where this happens and set the pot to the middle of this range. You should then be able to make a perfect digital recording of any CD. Note however that unless you own the copyright to what is being recorded this is actually illegal.

If you want to use a Toslink emitter you can make your own fibre optic cable – a length from Maplins costs about £1. The dust cover of the emitter acts as a plug, just drill it out and glue the fibre cable into it. As for the other end, do exactly the same as before but glue the fibre cable into it instead of the LED. And there you have it.

END

I have had an article published in at least one Acorn magazine every month for the last 18 years and that's a long time.

*Run The Risc* is going to take a break for a time, but don't worry, I'll still be writing lots of other stuff – I'm not about to stop now.

Keep on writing in.

# Free Ads

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# Education!

**F**or a while now, I have watched the decline of decent educational software being produced for RISC OS. I ensure that 'Educational' has a capital E since I cannot deny that, in other, more commercial, fields, there are some dynamic moves afoot. However, Educational software houses, Sherston and Logotron included, seem intent on developing their software for the (let's face it – outdated) A3010 family.

While this helps to illustrate the 'One for All and All for One' ethos of the RISC OS fraternity (something that has certainly kept me loyal), I feel that, perhaps, this is no longer relevant to the Education sector. As a RISC OS fan and ICT coordinator of a Junior School, I often get offers of old Acorns being turfed out of other schools. My experience tells me (and I am largely doing the same) that the older machines are being ditched in favour of the more powerful.

In many cases, this is an RM or Compaq Network (lots of money for the support team!), however, I have never come across a Risc PC or A7000 being turfed out of a Primary school – Secondary, yes, for Adult education purposes, but Primaries seem to succumb only to financial pressures. In the light of this I feel that there would still be a prevalent market for RISC OS software in Education, if software houses would have the guts

to say 'OK, our new software will require at least an A7000, but it will do all this!' rather than the current thinking: 'Well, we will continue to write some software for the Acorn platform, but it won't have photos or video.'

Well, why won't it? Let's see you show it off! There's no point in saying there is no market for software if that market hasn't been tested. Nobody (especially schools on a shoe-string budget) is going to buy something that doesn't meet expectations. There is a lot of 'content-free' software for the PC, but there is little, in terms of the Curriculum, that makes you say 'No, I'll buy that on RISC OS instead'. There should be, because it is a more stable, child friendly, smoother, faster...blah, blah, blah...system.

Anyway, climbing down from my lofty soap box, the purpose behind this letter is a plea for help. In my search for some decent Education Software for RISC OS, I descended on the virtual mailbox of Dorling Kindersley to discover their views on things. I had no idea that reader disks used to be available to transport DK software to RISC OS.

Unfortunately, these, along with the company that made them, disappeared with the demise of Acorn. I was told, by one very helpful guy, with his head obviously on the right way round, that DK had not closed the doors on RISC OS. If the

right company could be found, willing to make the disks, then things could go on as they always (allegedly) had. I dug still deeper.

After talks with 4Mation, they were quite eager to step in the shoes of the previous reader disk developer. They, in turn, contacted DK. This time, however, DK were not quite so forthcoming. It seems that they are happy for the reader disks to be made, so long as they do not have to put any money or effort into their production. They wanted 4Mation to do the market research and prove to DK that it is a worthwhile venture.

With a severe lack of educational research materials for RISC OS, I'm sure it is, but 4Mation do not have the funds to prove it. So, there are three ways we can tackle this: E-mail [tom.walker@dk.com](mailto:tom.walker@dk.com) and he will pass on your views to the Education department; E-mail [Online@dk.com](mailto:Online@dk.com) and they will pass on your views to the Education department. Stick our heads back in the sand and pretend that 'Matti Mole' really shows ARM technology off to its limits.

Acorn designed RISC OS to be used in Education, let's not loose it after so much work has been done.

Graham Wootten  
Berkshire

## Got the TeX?

Reading your April issue I see that in addition to an article on TeX and LaTeX you review RiScript and say that there are problems with the inclusion of links in the PDF document produced by RiScript.

For some while I have been using PDFLaTeX with the package *Hyperlink* and this has been generating fair PDF documents for me with active links – click on an index item and it jumps to the section. Now the down side, I have been doing this using *MiKTeX* on my PC card and at work. I have also used the new

font selection scheme to `\usepackage{times}` and so get better fonts in my PDF files.

This is the difficult bit then, does Paul Webb, who is writing the TeX article, or anyone, know how to get these packages working with RISC OS? They are not in the distribution I have and not having the time to spend hacking into the source and compiling them for myself I have not found a way of running them without starting the PC card up (bit of a waste of time usually).

R.G. Mayze  
The Wirral

## Time and again

I think Malcolm Brooke (Letters, April 2000) is referring to my *Counter* program, which appeared in the \*Info section some time ago.

Although it correctly calculated the time until an event in the twenty-first century, it failed once the current year reached 2000. An updated version with this bug fixed is available from my web site:

[www.argonet.co.uk/users/rawle/jr/](http://www.argonet.co.uk/users/rawle/jr/)

In the January 2000 issue, you featured my *Elements* application, but gave an incorrect URL. This program is also available at the address given above.

Jonathan Rawle  
by e-mail

## Contacting AU

[letters@acornuser.com](mailto:letters@acornuser.com)



Paul Vigay

**A**ll I knew about Paul Vigay was that he works for Argonet as ANT technical support and writes for *Acorn User*. OK, so it's interesting in its own right, but not enough to want to tell the whole world about. But I kept getting requests: 'You must interview Paul Vigay, he's such a character', 'Paul Vigay - you should do him, he's the Acorn community's own Fox Mulder...'.

It came as no surprise to find that Paul was one of the first to have a BBC B computer: "I have been programming since 1978, when I was first introduced to a Commodore PET at school. I then moved from paper tapes to a Sinclair ZX81 and in 1982 to the BBC B. I started programming pretty much as soon as I got it and wrote several games and applications.

"As soon as the Archimedes appeared I bought a 310, then a 420/1 and a Risc PC as soon as that came out, so you could say I've been supporting Acorn with each new machine. I've been dedicated to Acorn through the years and run the international Anti-Microsoft site."

Paul has worked as a computer consultant for the BBC. He wrote all the software for the children's series *Science Challenge* which, contrasts nicely with Paul's appearance on *News at Ten* as an authority on the paranormal.

"I have always had an interest in the paranormal and the unexplained," explains Paul. "I first became interested in crop circles in 1990 when I was developing some electronic equipment to detect electric current flow behind walls and floors. My mother, who makes dried flower arrangements, had previously collected some corn stalks from local corn fields.

"As I was playing with my new 'toy' I jokingly placed the probe on one of the stalks of corn. I got a reading of electric charge. On some stalks though I got no

reading at all. My mother became interested and requested that I leave the room. While I was out she rearranged the stalks. When I came back in I re-tested the stalks and got the same result; I repeated the test five or six times. My mother explained that the stalks with no reading came from the within the crop circle. Still sceptical, I decided to visit some crop circles for myself, took readings and to my amazement, I got 'normal' readings around the field which stopped as soon I entered the crop circle.

"So from being a sceptic from a scientific background, I decided through my own experiences that there were anomalies which couldn't be explained away, even though we know a lot of hoaxing goes on."

Whether you believe in the paranormal or not, Paul does have a few surreal stories of sitting on hilltops looking for UFOs, swapping stories with people like Reg Presley (lead singer of the Troggs), or being threatened by the MOD for revealing classified photos onto the Internet. And yes, Acorn machines do come into it.

"I try to maintain my support for RISC OS through my various other endeavours. I always take my Acorn computer when I'm asked to give a presentation or lecture at UFO/crop circle conferences. People comment afterwards on the quality of my presentation and are quite surprised when I say it's a 10-year-old machine. I've also stored all my crop circle diagrams on my Web site in *Draw* format - which gets quite a few enquiries, especially from Americans about how they can run RISC OS."

Paul was the Acorn/BBC editor of the online service Micronet 800 during the late 80's and early 90's. He was involved in writing some of the early CD-ROM applications distributed by Cumana. So it comes as no surprise that he is currently working on a number of projects.

"In a way it makes me angry at the way Microsoft has bullied its way into the schools market. My multimedia database will not only incorporate a fully featured genealogical application but also be capable of creating all manner of databases, from simple multi-media presentations to list based data management."

I think it's safe to say that Paul certainly lives life to the full and if you think the above is not enough, he also manages a rock singer called Uno who used to be the lead singer for Higher Ground. Uno has just released a new album, a few tracks of which Paul is hoping to get exclusively converted to MP3 format for the next AU CD. In this case, you really will have heard it first from *Acorn User*.

Jill Regan

I started  
as a  
scientific  
sceptic

# spacetech

## imaging technology

news

### New Cameras:

C2020L, C860L and C960Zoom  
New cameras, New prices!

### OHP2

Presentation package  
now in stock

**PHOTODESK 3** is the package which defines studio quality image editing and artwork on RISC OS machines. It is easy to use but has many powerful features, including LAYERS and a sophisticated colour management system (CMS) for the full-time graphics professional.

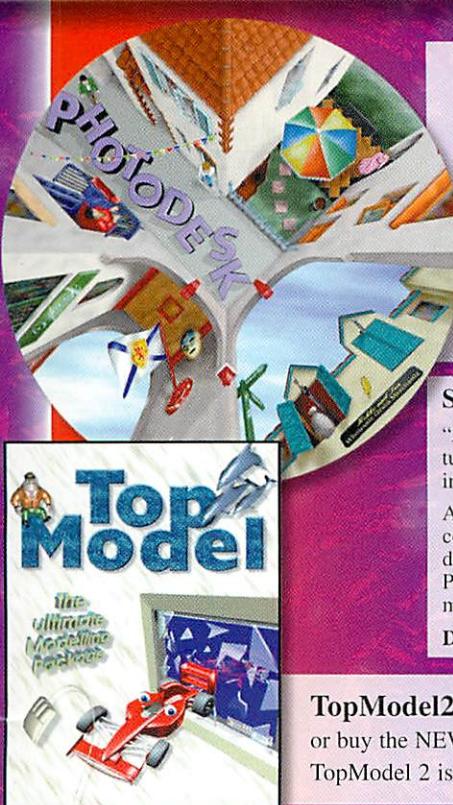
**£299.50**

**PHOTODESK2** is still available, retaining the CMS but not layers.

**£199.00**

**PHOTODESK LIGHT**, an economic alternative to PHOTODESK3 retains most of its creative features apart from the Colour Management System, Layers and some features essential to the professional user. £134.75 Plug-in Effects Packs are available for all Photodesk packages. Each pack contains 10 special effects.

**£19.95**



### Spacetech tutorial CD ROMs:

"An Introduction to Digital Art" featuring bitmap and vector graphics tutorials by the well-known artist, David Cowell. This is a fascinating introduction to studio quality graphics work on CD ROM for **£24.95**

A NEW CD from David is now available: "Creative Digital Imaging" This contains a resource of images and covers the following topics in greater detail: Digital painting, Painting with Texture, Digital Photography, Photo illustration, Montage, Portraits, Words and Text, Creative masking, Hints and Tips.

**£24.95**

**Digisnaps:** A library of over 100 high quality digital photographs from David Cowell. **£12.95**



**TopModel2 V.2.14** is now available for **£152.75**. Existing users may upgrade for **£29.95** or buy the NEW CD-ROM packed with resources, the new plug-in Top3DFonts! and a free 2.14 upgrade for only **£58.63**. TopModel 2 is the definitive 3D modelling package for RISC OS.



### A presentation package on CD-ROM from Spacetech Makes your slide shows quick and easy to create!

- Start building your presentation 5 minutes before the lesson? – No Problem
- Use your existing work in a presentation? – No Problem, just drag 'n drop it in!

**OHP2** now available on CD-ROM. Many new features including Sound and Export.

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(Upgrade from  
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**PhotoLink** is an Acorn multi-driver for the most popular makes of digital camera. It is bundled FREE\* with the following cameras:

**C860L NEW! 1280x960** resolution, TFT screen, macro, 2x digital TeleMode. Our price only **£299.99**

**C960ZOOM 1280x960**, 3x optical zoom. NEW replacement for C920Z our price only **£399.99**

**C2020 ZOOM NEW! 1600x1200** optical zoom. This camera has everything including manual override for auto settings, remote control. Records bursts of quicktime movie! Our price only **£549.99**

\***PhotoLink** is available free with cameras purchased from Spacetech or on its own, if you have purchased your camera elsewhere, at **£69.00**.

**PhotoReal** is the Acorn driver extension for the Canon BJC4300, BJC4650, BJC7000, BJC 7100 BJC2000, Epson Photo, Photo700, Photo750 and Photo1200 printers with photo-realistic capability. PhotoReal makes use of the same advanced techniques for producing high-quality four-colour separations as Photodesk and comes ready calibrated for the special dye-based inks used for photo-realistic printing. A calibration application is also supplied to allow you to tailor the results to your own specification.

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**Examples:** Canon BJC2000 **£149.95** Epson Photo1200 A3 **£399.99**  
Epson Photo750 **£209.95** BJC7100 **£299.00**

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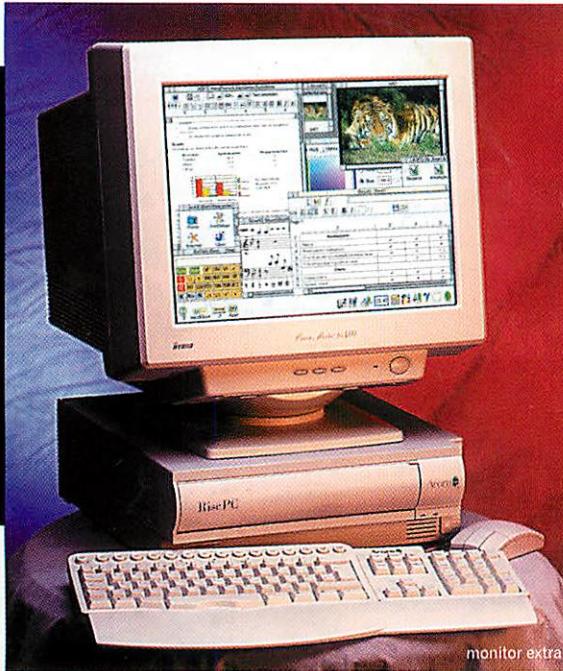
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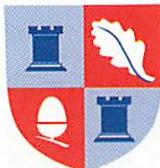
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